Open Ward, Brisbane Hospital. (Messrs. Hall & Dodds, Architects.)

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MILITARY EMERGENCY HOSPITAL CONSTRUCTION.

By A. Saxon Snell [*F.*].

(*Continued from p.* 80.)

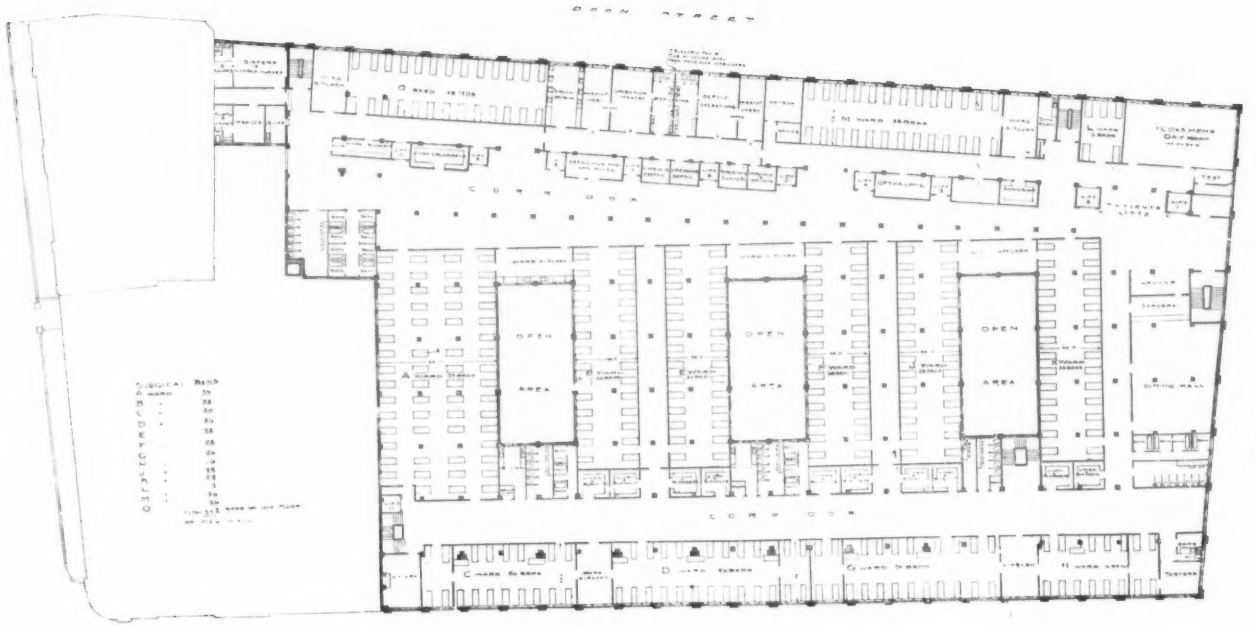
Methods of construction employed in these hospitals vary. The War Office Model Plans provide for a framing of timber, lined on the inside with boarding or plaster, and on the outside with corrugated iron. The roofs are also finished with corrugated iron. These buildings are, no doubt, quickly and easily erected, but æsthetically they leave much to be desired, and they must be noisy in heavy storms of rain.

Timber framing lined inside and out with asbestos sheets is another method of construction, and these buildings have the merit of being much more sightly, and no less fire-resisting. At Leicester the walls are of brick. The roofing is of the material called ruberoid. Tongued wood floors are general, but at Shorncliffe Mr. White has covered them with linoleum, than which there is no more satisfactory ward floor. At Leicester the floors are of cement.

Steam pipes and radiators—and not many of either—are used for closed wards. At Shorncliffe anthracite stoves are used. At the Duchess of Connaught's Hospital, Taplow, Col. Gorrell, the Commandant, told me that the radiators are heated only for a couple of hours in the evening when the patients are going to bed. These are semi-open wards.

In the open-air wards no heating whatever is provided. It would, of course, be quite ineffective. Nevertheless a few open fires are desirable, and in the later buildings at Leicester Mr. Perkins Pick, the architect, has provided at the end of each ward a partly enclosed Day Room, with an open fire, which must be much appreciated, if only for its appearance and comfort. It provides also for the nurses some means of warming their hands previous to changing dressings, &c. Electric lighting is general.

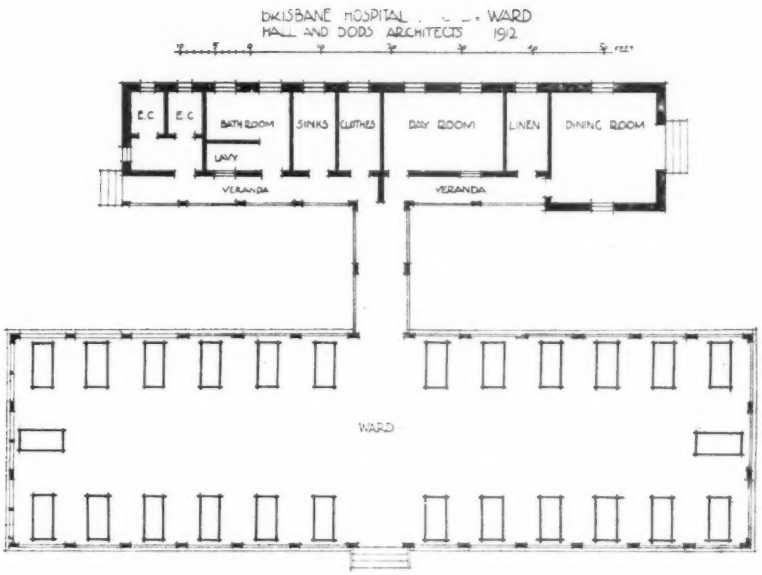
In the construction of these buildings we must not be critical as to the finishing, nor expect to find any meticulous care displayed in rounded internal angles, and in the avoidance of dust ledges. We do not expect even aseptic surfaces. We shall find that sinks and lavatories are supported on rough wood frames, and that fittings are *not* carefully fixed clear of walls. I will not say that these commonplace rules of hygienic construction have been ignored in every case; but I do say that we must not expect them, nor think lightly of the building and the architect for their omission. The buildings are meant to be temporary, are built quickly, and at very small cost, and these matters are incompatible with refinement in detail.



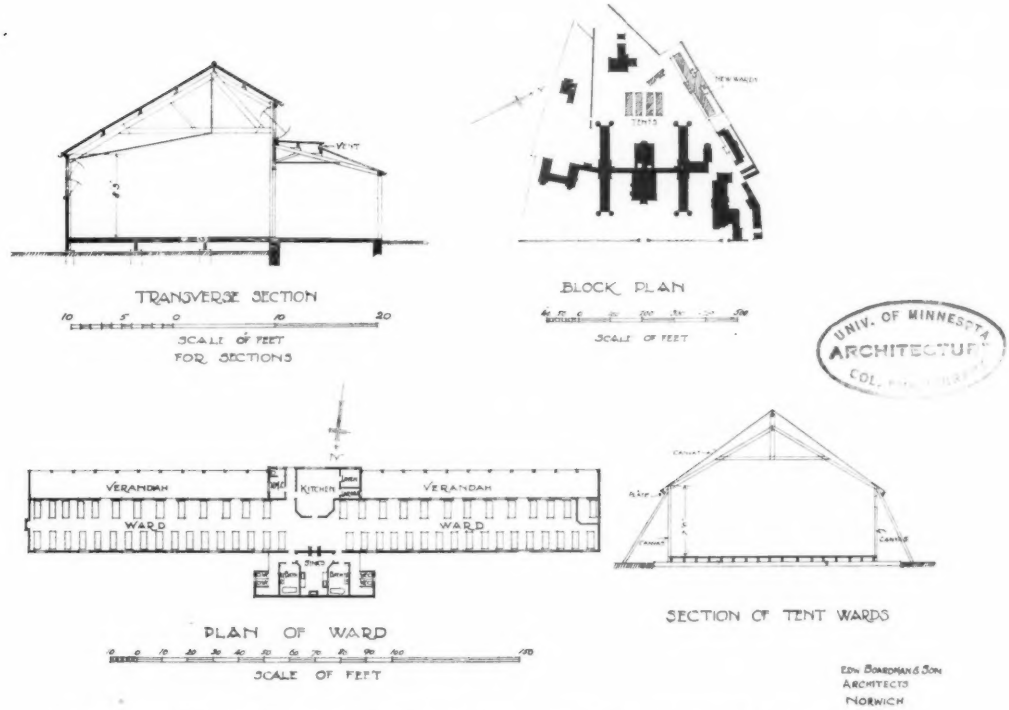
SECOND FLOOR PLAN

KING GEORGE HOSPITAL (H M. STATIONERY HOSPITAL), Stamford Street. Messrs. Edwin T. Hall and E. Stanley Hall, Hon. Architects; designs carried out by Mr. H. B. Measures, Director of Barrack Construction.

Accommodation, 1,700. Theoretically a most unsuitable building, as most of the wards are lighted only from small enclosed areas. The whole building is, however, well finished and fitted. Wards are divided off by light concrete partitions. Everything done to secure whatever ventilation is possible. Proximity to Waterloo Station of great value.



OPEN-AIR HOSPITAL, BRISBANE. (Messrs. Hall and Dodds, architects).



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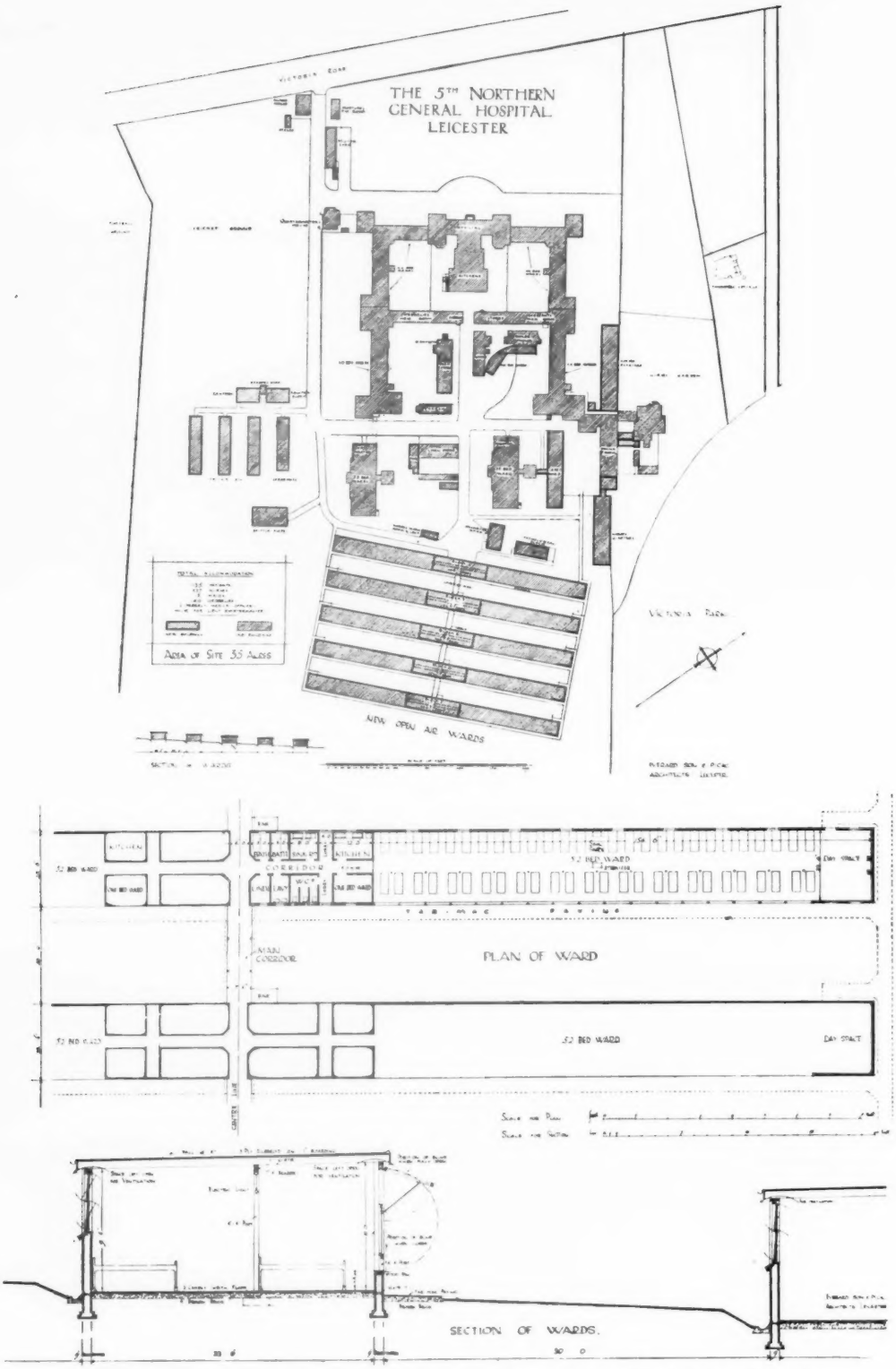
NORFOLK AND NORWICH HOSPITAL: TEMPORARY HUTS. (Messrs. E. Boardman & Sons, Norwich.)

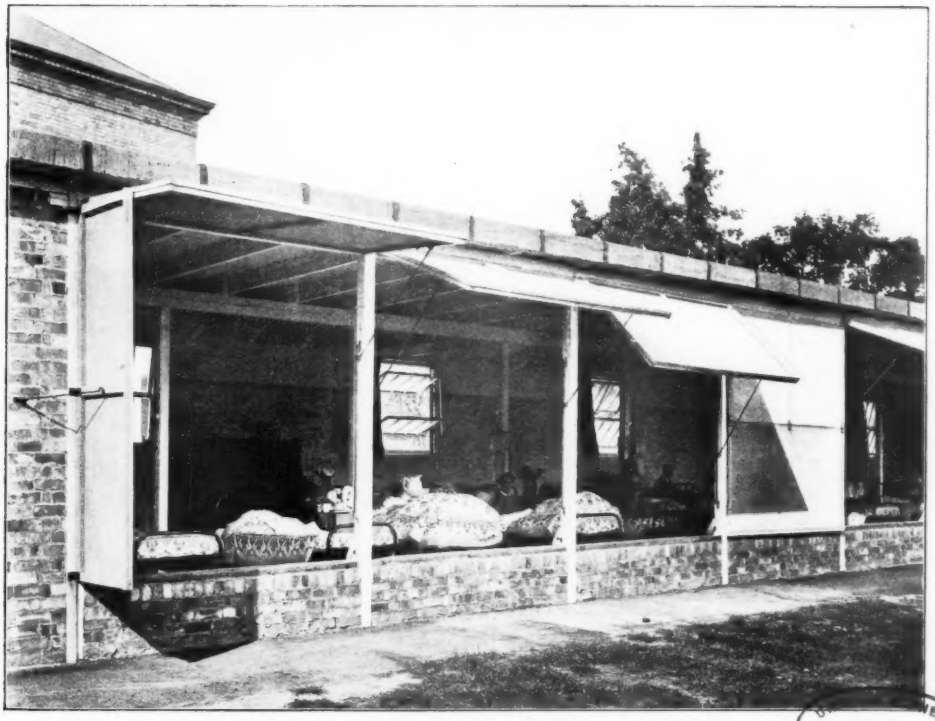
Accommodation, 60 beds. Cost of ward blocks only, £25 per bed. General construction: timber framed, lined inside and out with asbestos sheets; boarded floor, roof covered with pantiles. Open fireplaces in wards. Windows for light and ventilation over the verandah.



FIFTH NORTHERN GENERAL HOSPITAL, LEICESTER. (Messrs. Everard, Son, & Pick, architects.)

Cost, ward blocks alone, £15 10s. per bed. Accommodation, 530 beds. General construction: brick walls, cement floors, flat roofs covered with ruberoid. Awnings of plain wood frames covered with canvas. Built in two months. Open-air Wards facing south. Based on Cambridge plan.

Internal View of Open-air Wards.



Detail of Blinds, showing adaptability to various requirements.

FIFTH NORTHERN HOSPITAL, LEICESTER. (Messrs. Everard, Son, & Pick, Architects.)

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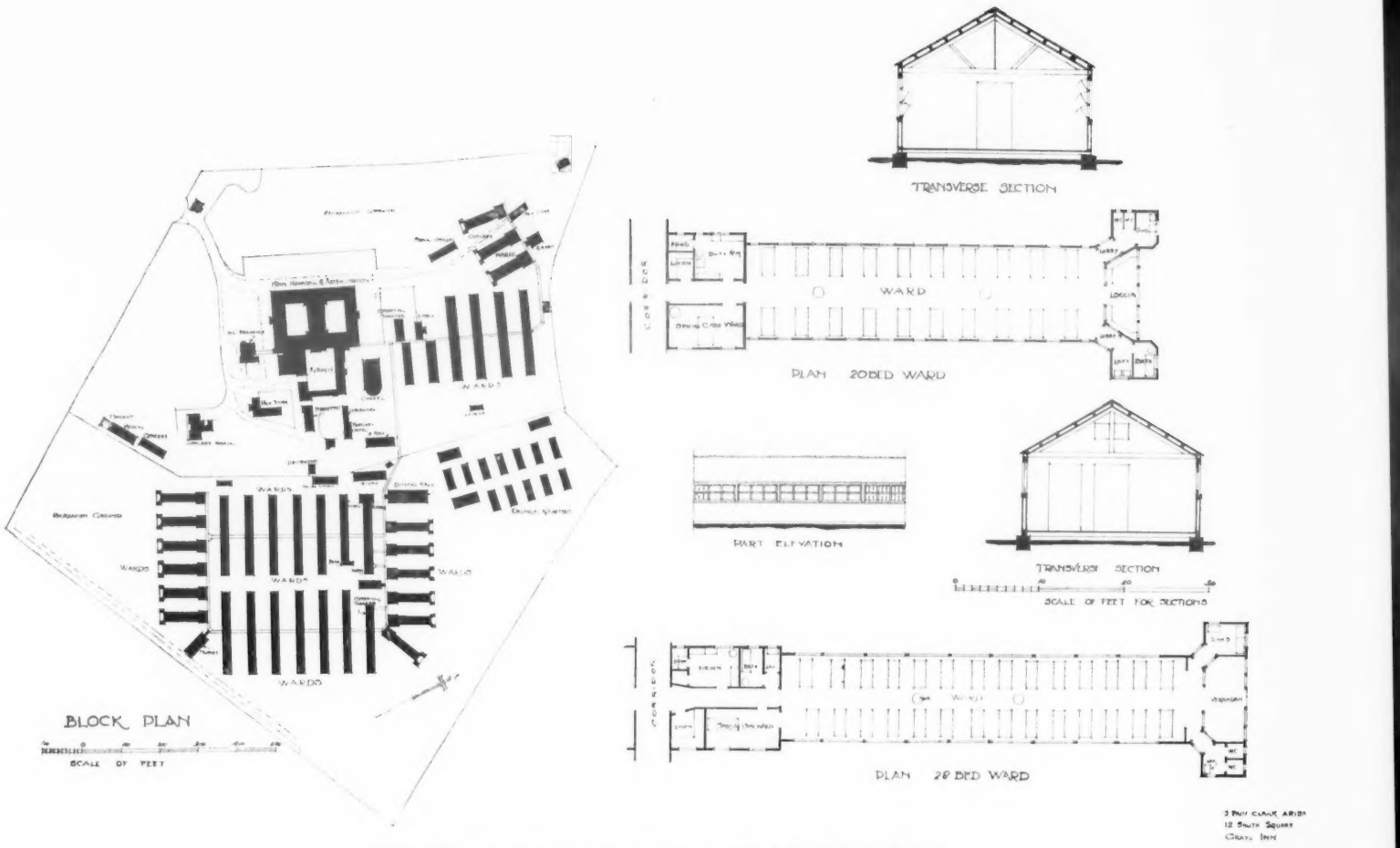


THIRD GENERAL HOSPITAL, WANDSWORTH. (Mr. Pain Clark, architect.)

Cost per bed, about £48, exclusive of alterations to old building. Small site. Ward blocks vary in plan, being built at different dates. 1,500 beds. General construction: timber framed, galvanised iron outside on boarding, internal faces ½-inch plaster slabs finished in Keen cement; grooved wood floors.

After all, the more nearly we attain to open-air conditions the less important are these refinements. Whatever harm may result from the dust and dirt accumulated in angles and corners and upon rough surfaces is largely neutralised by the aseptic qualities of sunshine and pure fresh air in abundance. I do not suggest that these refinements, as I have called them, can be safely ignored in *all* cases ; I think that for fever cases, for instance, and in the Operating Theatre we cannot afford to do so, the risk is too great.

There is one matter, the provision of a concrete bed under the ground floor, which we can scarcely call a refinement, and I am bound to criticise adversely its omission in many of the temporary buildings. It may be of less importance if the building is raised a few feet above the ground, so as to provide a clear sweep for the air ; otherwise, especially in closed wards, ground air is bound to find its way upwards, and the quality of ground air is variable and not to be ignored with impunity.

The cost of these buildings varies to a surprising extent. But we should be careful in drawing hasty conclusions in the matter. It is very difficult to generalise, because so many factors affect the cost of buildings. When the cost of these Emergency Hospitals varies from £20 to £70 per bed—and £500 per bed is a recognised round figure for *permanent* hospitals—it is obviously difficult to explain the variation in a few words. Of course, there can be no possible comparison between the cost of temporary and permanent hospitals, any more than, say, between this fine room and a tin mission hall, although they may be equally effective in all that is materially essential. The variation in cost as between one temporary hospital and another depends upon quite a number of matters, *e.g.*, whether staff quarters, operating rooms, &c., are included—the situation and site—the relative cost of ordinary buildings in different neighbourhoods, &c. Some, too, are more highly finished.

Let me conclude by reminding you that the most important factors in the cure of disease and injury are high medical and surgical skill and good nursing. A hospital may be regarded in the first place as the workshop of doctors and nurses, and the better it is adapted for the purpose the more effective the service. The teaching of Chadwick and his disciples has, however, shown physicians and surgeons that Nature is their greatest ally, helping them silently, slowly and surely, and preventing the dissipation of their energies in battling against preventable obstacles to recovery.

I should like to express my thanks to the War Office for the information and facilities they have given me, and to the many architects who have, at the expense of no small time and trouble, provided me with the material for this lecture.

OTHER HOSPITALS CITED AS ILLUSTRATIONS.

First Eastern Hospital, Cambridge.

Architect, Mr. Chas. Skipper. Accommodation, 1,500 beds. Cost per bed, £20, exclusive of accommodation for nurses and medical staff. All wards face south. No open fires in any part of the ward buildings. Double connecting corridors which provide for disconnection as sanitary offices from ward blocks. General construction : unwrought timber posts and framing covered outside only with asbestos boards ; roofs covered with ruberoid ; floors of tongued boarding.

Third Eastern Military Hospital, Huddersfield.

Architect, Mr. Kenneth F. Campbell, Borough Engineer, with the assistance of Prof. Sims Woodhead. Accommodation, 500 patients. Cost per bed, £45 complete. Erected in two months. General construction : wood framing, asbestos sheets and ruberoid roofs ; canvas blinds. Based upon the Cambridge plan.

Woburn Abbey Hospital.

Hospital improvised at Woburn Abbey by the Duchess of Bedford on the open-air principle, using verandas, riding school, and aviary.

Duchess of Connaught's Red Cross Hospital, Taplow.

Architect, Mr. Chas. Skipper. Cost per bed, £48, exclusive of staff and nursing accommodation. Pavilions in butterfly form, all facing south ; whole south fronts ; windows generally kept open. Experiments have been made to substitute for windows very fine wire gauze. Construction is similar to Cambridge, but lined inside and out with asbestos. Wards provided with a small number of steam radiators, heated only for a couple of hours while patients are going to bed.

Scottish National Red Cross, Glasgow.

Architect, Mr. Chas. Skipper. Cost per bed, £54, including staff and nursing quarters. 1,500 patients.

ADDENDUM.

It is inevitable that when we return to normal times of peace the experience gained in this War will materially affect the design, construction and cost of permanent hospitals; and it is equally inevitable that many mistakes will be made in trying to do in peace things which were satisfactory in war. It will be suggested that if excellent sick wards were made with timber or other light structures for war service, why should we waste money in costly permanent buildings? It will be pointed out that if a hospital, such as that at Cambridge, can be built for £20 a bed, it must be reckoned extravagance to continue building others at £500 a bed.

These questions will scarcely be raised by those who are intimately acquainted with the subject, and with such it is unnecessary to argue. It will be quite as reasonable to ask men who have been roughing it in "dug-outs," roofless farmhouses, temporary huts, etc., during the War, why they should want to return to the comforts and housing conditions of ordinary life. Doctors, nurses and patients will cheerfully suffer the inconveniences and rigours of war as part of the game; but not so in normal times, even though it may be clearly demonstrated to them that the hard conditions of war time were conducive to quick recovery and fitness for work. Dr. Boobbyer, of Nottingham, has indeed trained his nurses to work his open-air hospitals, year in and year out, but it requires men of forceful personality, such as his, to achieve this result.

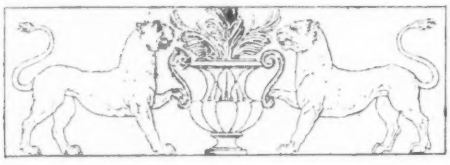
Nevertheless, if alone because after the War we shall have to exercise economy in every direction, we must reconsider the whole question and make up our minds as to what is and what is not essential in the design and construction of permanent hospitals.

In the first place, Building Laws will have to be considerably modified before we can build in any other way except according to present by-laws; secondly, we shall have to reconsider every orthodox fitting and the finishing of surfaces and to reject those which cannot be shown to be absolutely necessary. Costly tile or marble linings to bath-rooms, sanitary conveniences, and even operating theatres, may be discarded without material or, indeed, any risk. Painted and enamelled Keen's cement surfaces are, if anything, better for all purposes, and they cost far less. Teak joinery may well give place to soft wood, painted and enamelled. Indeed, several varieties of solid doors are made with soft wood interiors and birch wood surfaces, which can be painted and finished with a fine surface, and, of course, they are much cheaper than solid teak doors.

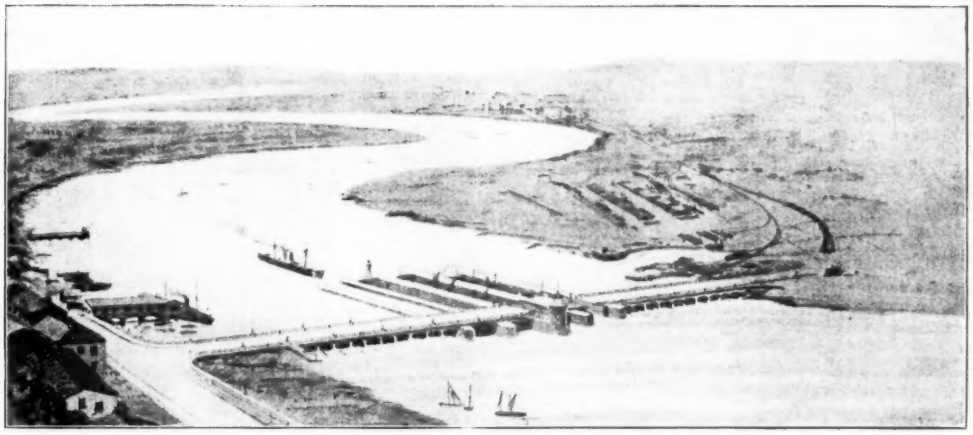
Not much saving can be effected safely in metal fittings and plumbing, because experience shows that it is economical in the long run to use those of the best and strongest.

When we have once realised that a comparatively high temperature is unnecessary and really harmful for patients we may dispense with a great deal of heating apparatus. Indeed, in open-air hospitals, it can be reduced to a negligible amount. When we can devise a method of admitting fresh air more freely (without draughts) into the wards it will be possible to reduce the present standard of cubic space.

A. Saxon Snell.



THE THAMES BARRAGE.



PROPOSED THAMES BARRAGE AT GRAVESEND.

IT is ten years or so since the project for a great barrage across the Thames at Gravesend was first mooted. With the formation of the Port of London Authority the suggestion, however, fell into the background, in view of the many pressing matters in connection with the Port which needed urgent attention. The idea has, however, recently been revived by a letter written to the Institute by Lord Desborough, Chairman of the Thames Conservancy, and the matter is now having the consideration of the R.I.B.A. Town Planning Committee, of which Sir Aston Webb is Chairman.

It is evident that there are many points of interest to the architect in such a proposal, although the execution of the project itself is one involving various engineering and commercial problems. The proposal for the construction of such a barrage has so far never been considered by the responsible authorities, and in view of the large expenditure contemplated or already in hand by the Port Authority in the deepening of the river and the construction of new docks, it is desirable that the suggestion should at least be carefully investigated.

Shortly after the Barrage Scheme was originally promoted, a book entitled *The Port of London and the Thames Barrage* was published by Messrs. Swan Sonnenschein, and the following précis of the information it contains has been abstracted by the Hon. Secretary of the R.I.B.A. Town Planning Committee :—

The book comprises studies and investigations by Mr. T. W. Barber, M.Inst.C.E., Engineer to the Thames Barrage Committee ; Mr. E. T. Hennell, M.Inst.C.E. ; Mr. C. J. Dibdin, F.I.C., F.C.S. ; Mr. Clayton Beadle, F.C.S. ; and Mr. D. Urquhart. These are naturally all in agreement as to the practicability of the scheme, the cost of which is estimated at 5¼ millions sterling.

The Thames Barrage Committee was formed in 1903, with Sir Thomas Brooke-Hitching as Chairman, to promote a public enquiry into the proposed barrage across the Thames in the neighbourhood of Gravesend, thus converting the whole of the lower river from Tilbury to Teddington into a fresh-water lake. Although three Bills were promoted, the agitation was unsuccessful, but the opportunity provided by the proposed creation of the Port of London Authority suggested the desirability of producing the book.

The introductory chapter deals with the growth of the volume of trade in tonnage of vessels, etc., and gives some extracts from the Report of the Royal Commission on the Port of London.

The tonnage of vessels entering the Port increased from 6 millions in 1860 to 15⅛ millions in 1899. The value of goods imported increased from 124 million pounds sterling in 1872 to 164 millions in 1899. Exports in 1899 were 88 millions, and re-exports of foreign goods were 34½ millions. In 1840 the number of vessels registered in the Port was 2,955 with a tonnage of 619,920, and in 1901 they numbered 3,027 with a tonnage of 1,850,809.

The Royal Commission states that "the abolition of the Scheldt dues in 1863 brought Antwerp into rivalry with London, and Hamburg, Rotterdam, Havre, etc., followed suit. This competition is still in its infancy and Continental ports are spending lavishly on improvements. It seems inevitable that the business of London as a port of distribution will decline."

The Royal Commissions which have reported on the Port are : the Select Committee on the Pilotage Bill, 1870 ; the Thames Traffic Committee of the Board of Trade, 1878-9 ; the Select Committee on Pilotage, 1888 ; the Lower Thames Navigation Commission, 1895-6 ; and the Royal Commission on the Port of London, 1902, at which every interest was fully represented, except the barrage proposal.

Evidence offered in 1902 in favour of the barrage proposal was refused by the Commission on the ground that it was outside the scope of their reference, which was based upon the scheme of dealing with the river as a tidal one.

The suggestion is made that the opposition of the then dock companies to the proposal was due to a fear that the

barrage, by making the river itself into a vast dock, would injure their monopoly and possibly prevent their being bought out. With the creation of a public authority to control the Port of London this objection disappears.

There can be no two opinions, after reading the Report of the Royal Commission on the Port of London, as to the need for a drastic and effective change of methods. The present disabilities of the Port are given as: (*a*) Insufficient depth of water for increasing size and tonnage of ships: (*b*) Tide waiting at Gravesend and at dock entrances; (*c*) Excessive dues; (*d*) Overlapping of authorities; (*e*) Excessive cost of barging, pilotage, and labour; (*f*) Loss of time at the Port; (*g*) Dangerous navigation due to tides, narrow channel bends, fogs, and crowded state of river.

The remedies proposed by the Royal Commission, and now by the Port Authority, are dredging and keeping dredged the river channel; the construction of new docks and certain administrative changes; deep-water dock extensions near Tilbury.

Alternative schemes include: formation of a deep-water basin below Gravesend; deep-water wharves above Greenhithe; jetties along the river front extending into the deep channel; dockisation of the upper part of the river (above London Bridge); and construction of cuts across bends of the river. None of these have met with much approval as they are all partial remedies, besides being very costly or impracticable.

Proposals to improve the navigation of the river by dams, with locks and weirs, were made as far back as 1857, but none of these proposals contemplated a dam below Woolwich or Blackwall. In 1859 a paper by Mr. W. R. Browne, M.Inst.C.E. (Vol. 66, Inst.C.E.) and an earlier paper by Mr. H. Robinson (Vol. 15, Inst.C.E.) advocated a dam and locks at London Bridge. There are already 32 locks on the Thames between London and Oxford.

During 1904-5 a number of resolutions in favour of enquiring into the merits of the barrage scheme were passed by public meetings at Bermondsey, Grays, and Northfleet, and by the Borough Councils of Woolwich, Southwark, Hackney, and Wandsworth, the Thames Conservancy, City Corporation, &c. Letters in support were written on the engineering side by Sir Douglas Fox, and on the sanitary side by Mr. W. J. Dibdin.

In the past the authorities governing the Thames have been the Thames Conservancy Board (dating from 1857), the Watermen's and Lightermen's Company (dating from the sixteenth century), the Trinity House (Buoys, Beacons, and Pilotage), the City Corporation (Port Sanitary Authority), the Dock Companies, the Board of Trade, the Admiralty, London County Council, and the Metropolitan Police. The powers of these authorities with respect to the Port are now largely transferred to the Port of London Authority.

The engineering questions involved in the barrage scheme are very important, and may be summarised as:

1. *Geological Conditions*, which must dictate best position for barrage.

2. *Topographical Conditions.*—Possibility of drainage of land below high-water level, at present drained through sluices at low water.

3. *Practical Conditions.*—(*a*) Permeability of banks and works necessitated to obviate back flooding of sewers and surface-water drainage; (*b*) Constructional difficulties.

The Lower Thames lies mostly on the London clay and below Purfleet on chalk, mostly covered with thin beds of gravels, sand, and alluvial clays. The possibility of keeping the channel clear by dredging depends largely on the natural angle at which the material of the river bed will stand under water. A chalk bottom is a very stable one, but for other and softer materials the following angles may be assumed as approximately correct:

Dry sand and earth, 21° to 37° Damp clay, 45°	Under water these become 3° to 10°
Wet clay, 14° to 17° Shingle and gravel, 35° to 48°	Shingle and gravel, 7° to 15°

If these latter figures are correct, the difficulties of keeping a deep-water channel open are considerable.

Thames Data.

Total watershed area, 6,034 square miles.
Total length, 201½ miles.
Number of tributaries, 20.
Total length of tributaries, 464 miles.
Fall from Lechlade to London, 258 feet (or 21 inches per mile).
Average rainfall, 24 inches per annum (equal to 8,030,597,142 tons over the watershed).
Evaporation is 57 per cent., *i.e.*, 15 inches per annum.
Annual outflow 1,176,440,625 tons
\+ 344,636,200 tons (abstracted by Water Board).
Total 1,520,076,825 (equivalent to 8.61 inches of rainfall).
Average current, 2 miles per hour; ebb tide, 2¼ to 3½ miles per hour.

Tides.

London Bridge to Gravesend, 28 miles. Average range of tide, 15 feet.
London Bridge to Teddington, 20 miles. Average range of tide, 10 feet.
Extreme range of tide at Gravesend, 24 feet 6 inches.
Extreme range of tide at London Bridge, 17 feet 3 inches to 20 feet 8 inches.

Levels.

Trinity high water is 12 feet 6 inches above Ordnance datum.

The tide attains a height of 2 feet higher at London Bridge than at Sheerness. The salt water, being heavier than fresh water, is chiefly at the bottom and pushes up underneath the fresh water. There is known to be a large influx of spring water at various places in the bed of the river.

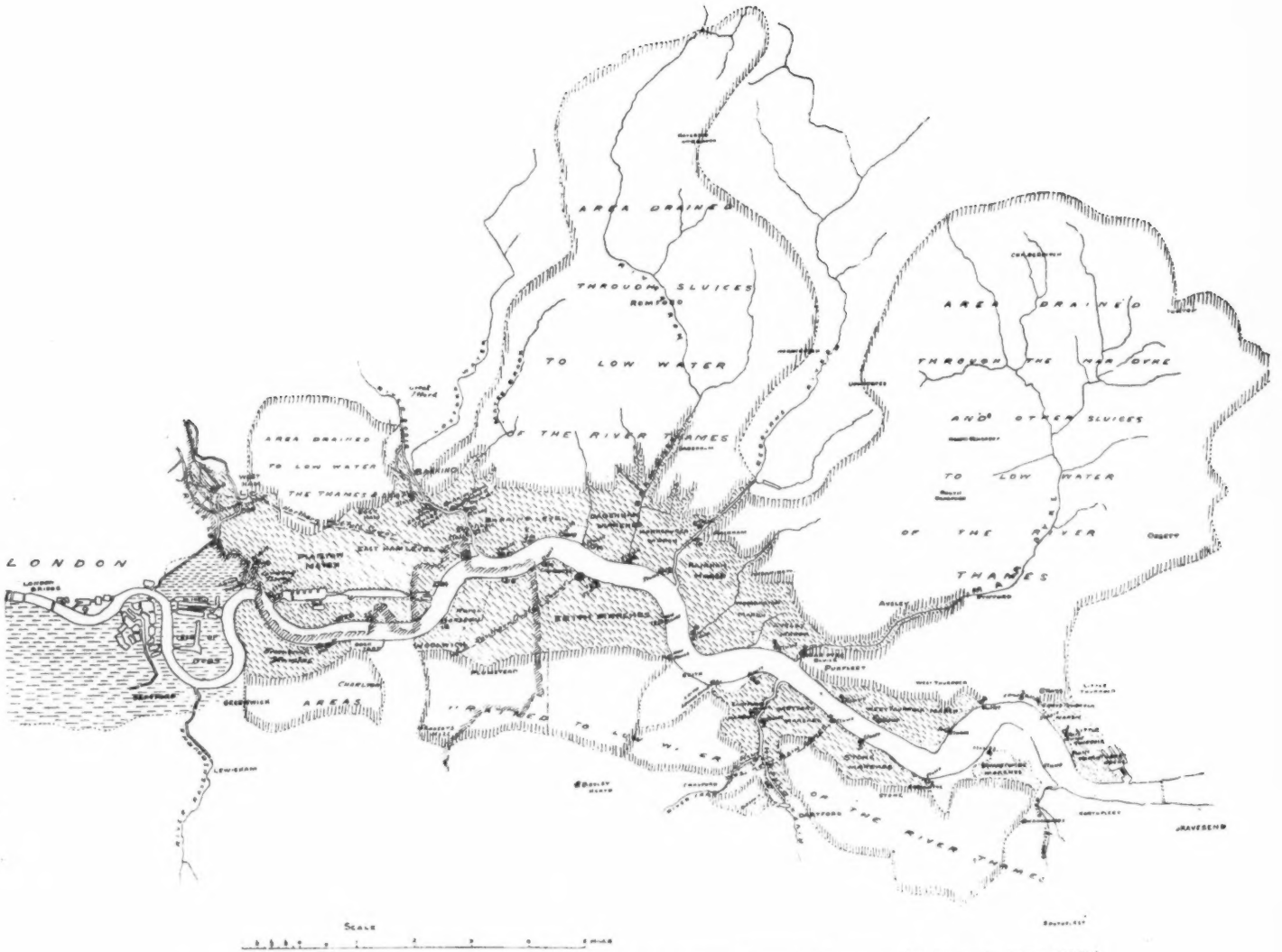
Depth at low water varies from:
6 feet at Teddington,
to 9 feet at London Bridge,
20 feet at Barking,
21 feet at Erith,
and 50 feet at Gravesend.

The volume of tidal water entering the estuary each tide is about 3,000,000,000 tons. The average daily flow of the river itself is 3,250,000 tons, which is only $\frac{1}{950}$ part of the total tidal water in the estuary. In this way the significant fact is arrived at that 96·6 per cent. of the estuary water is purely oscillatory, and it becomes matter for consideration to what extent the river water (3·4 per cent. of the whole) affects the channels of the estuary under these conditions. It is undoubtedly, however, the cleansing factor in the tidal river.

Silt.

The average suspended matter in the upland water is one grain per gallon, or an annual total of 20,000 tons of mud and silt brought down to the tidal river.

From the sewage effluents an annual total of about 40,000 tons of depositable matter (7 grains per gallon) is discharged into the tidal area.



Map of the Lower Thames Watershed, showing marsh lands and suggested Pumping Stations. (T. Hennell, M.Inst.C.E.)

From the storm overflows, of which there are fifty, and other sources, a further 10,000 tons is discharged, making a total pollution of 70,000 tons per annum.

This would probably make three times this quantity of wet mud.

In fact, however, the quantity of mud dredged is 700,000 tons per annum, of which it appears, from the above figures, at least two-thirds is washed up by the scour of the tides from the banks of the lower river. The docks at present form convenient mud-traps, and the author argues that if both docks and tide were abolished by the proposed barrage the small amount of mud in the river water proper would remain in suspension and be gradually carried out to sea.

Proposed Barrage.

The barrage is proposed at Gravesend, just below Tilbury Docks, in order to allow these docks to be used at all states of tide. The river at this point is not too wide. The foundation would be chalk, which will bear enormous pressures safely. The barrage would be approachable at all times of tide. Rail and road communication would be obtained across the river. Six locks of different dimensions are proposed, to allow a minimum depth of water at low tide of 35 feet, and a length of 1,000 feet, with a series of sluices on each side.

The power plant for working the lock gates and capstans would be considerable, and it is evident that a breakdown of machinery, or attack by enemy, might seriously affect the use of the river. An alternative by-pass canal is suggested to obviate this danger, but the danger of enemy attack would remain. The mode of construction to avoid obstruction during the progress of the works is carefully gone into. It is estimated that three years would be required for the construction of the barrage, but this seems an under-estimate, as only two or three piers could be in course of construction at one time.

The narrowing of the waterway will admittedly have the effect of increasing the velocity of the current at Gravesend to 3¼ miles per hour and near low water to 4½ miles per hour, and efficient organisation of the river traffic will be necessary. It is pointed out, however, that on completion of the barrage the river will be tideless above the dam, and practically still water for some miles below, thus reducing the great risk at present inseparable from navigating in the strong river tides.

A railway and possibly a road tunnel under the barrage forms part of the scheme.

The proposed water level is at Trinity high water as fixed by Act of Parliament in 1805 (12 feet 6 inches above Ordnance datum). Several of the principal docks at present have pumping plant to raise artificially the water levels to various heights, varying from a few inches to as much as 3 feet 6 inches at the London Docks above Trinity high water. With the construction of the barrage, the pumping will be unnecessary, except perhaps in the case of the London Docks. The present dry docks are, however, dependent on tidal action, and pumping provision would have to be installed for these.

The drainage outfalls are mostly below high water and very near low-water level, and it is obvious that any alteration in the permanent level of the river will necessitate arrangements for pumping the effluents into the river above Trinity high water. As an alternative, an intercepting sewer might be constructed along each bank of the river to take the effluents to a point below the dam.

The drainage of low-lying lands is a very important item, and will have to be dealt with by pumping or a system of intercepting sewers. Also the raising of the saturation level in land at present low-lying may be injurious to its use for building purposes.

Precedents.

Proposals have been made from time to time by engineers to dam important tidal rivers, but none have hitherto been given effect to until recently on the Charles River at Boston, where the conditions form a close parallel to those to be met with in the Thames.

In 1755 Smeaton proposed the dockisation of the River Clyde. This was not, however, adopted, and the Clyde Trustees have since expended £7,430,000 in dredging and improving the river to a low-water depth of 20 feet.

In 1877 Thos. Howard proposed the dockisation of the Avon at Avonmouth. His proposal was not adopted, because the extraordinary range of tide, some 40 feet, would have left the entrance unapproachable at low water.

The Charles River dam at Boston, however, appears to be the outstanding example of a similar dam actually carried out and completed within the last few years. Boston people have long agitated for a dam to hold up the tidal river to about high-water level, chiefly, however, from considerations of beauty and health rather than navigation, which, as the shipping port of Boston is mostly below the dam, does not constitute a matter of great importance. A special Committee was appointed in 1901 to go into the matter, and their conclusions are reported at length. It appears, however, that the absence of docks and shipping above the dam in the case of Boston constitutes an essential difference with the conditions ruling in the Port of London.

Dredging as a Mode of Deepening the Channel.—The practicability of dredging a deep-water channel up to London itself depends upon the angles of repose of the softer materials forming the river bed, and some of the evidence given by expert engineers before the Royal Commission on the Port of London shows that not only is there a difficulty in keeping such a channel dredged, but there may also be risk to the adjoining banks. This difficulty would, of course, disappear with the construction of the barrage.

The Possibility of a Silting up below the Dam has been investigated, but it does not appear that any difficulty need be apprehended on this score.

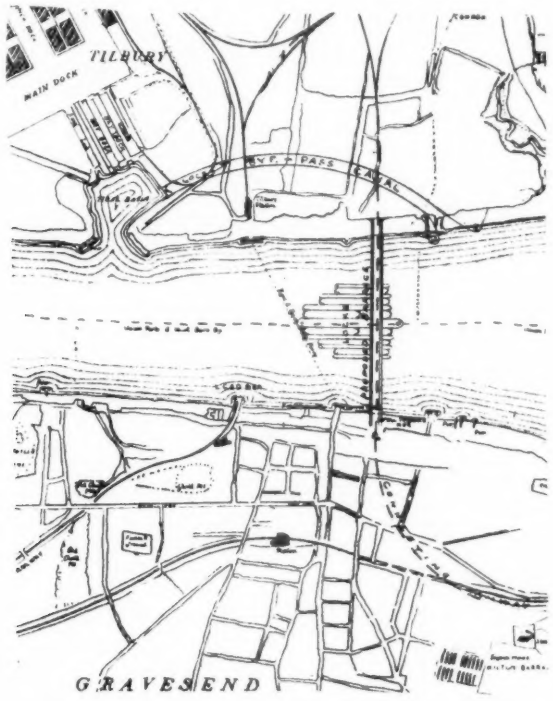
The Infiltration or Percolation of River Water from the Thames if the river were permanently held up to high-water mark would naturally be considerably more than at present, and the probable effect of this on low-lying land adjoining the river has been investigated by Mr. Clayton Beadle, Secretary to the Underground Water Preservation Association. He assumes that the river walls are perfectly water-tight, but that they are not built to any depth into the marsh, and therefore any permeable strata in the marshland is not shut off from the river by the wall. The natural water level in the marsh land is stated to approximate to the "mean tidal level" of the river. With the construction of the barrage it follows that the water on all such lands would have to be pumped up to the new level, say from 10 feet to 15 feet, in order to keep down the saturation level of the land to the present height. The extent of the marsh lands below high-water mark is very considerable, and is given as 130 square miles (*see* Map, p. 99), to drain which by pumping would necessitate some sixty-seven pumping stations, at an estimated cost of £474,000, and the improvement of river walls at a cost of a further £791,300.

THE SANITARY CONDITIONS of the river are dealt with by Mr. W. J. Dibdin, F.I.C., F.C.S., who is of opinion that the purifying power of fresh water is greater than salt water, and that a comparatively still body of fresh water, with animal and plant growths, will dispose of very considerable amounts of sewage. Mr. Dibdin's remarks, however, appear to be somewhat guarded, and it is possible that the sewage outfalls on both sides of the river would have to be removed to points below the barrage.

THE GROWTH OF THE TRADE OF THE PORT is well known, and it is mentioned by the Port of London Commission that there are 8,000 barges varying from 20 to 100 tons. The time saved in entering and leaving docks for unloading and other purposes will then be seen to be considerable.

the public for some time past, and has been very generally approved subject to its being proved to be practicable. As to this, two of the greatest living expert authorities have reported that it is practicable, and that it offers very important advantages over any other proposal yet suggested for solving the entire problem of the Thames, its port, traffic, cleansing, finances, and its beautification.

It is with this last that our present purpose is concerned, not because it is the most important, but because the commercial and technical aspects of the subject have been much discussed, while very little has been said about its lighter side ; yet, to the "man in the street," the resident, the visitor, and, indeed, to everyone who considers it apart from a purely business point of view, the look of the river, its appearance from every direction, the opportunities it will afford for pleasure purposes, boating, sailing, fishing, racing, riverside trips, and garden



Thames Barrage : Plan of Connecting Railways North and South.
(J. W. Barber, M.Inst.C.E.)

THE THAMES AS A HIGHWAY AND PLEASURE RESORT.

With the absence of tide, much could be done to encourage the growth of riverside pleasure resorts, and the improvement and embanking of the river would come as a natural consequence.

Extracts are appended from an article in *The Field* which puts this question of the possibilities of a pleasure traffic from the popular point of view :—

The regeneration of the Thames, its cleansing, and the beautification of its banks will only be effected by the construction of the proposed barrage at Gravesend, with the resulting removal of tidal action and the maintenance of its waters permanently at high-water level. This proposal has been before

places of entertainment and recreation, will, after all—though not of paramount money value—be the clear and standing evidence that will appeal to him strongly as proof of the improvement of the river as a result of the barrage.

There are many still living who can recall the old riverside resorts, which were in their prime fifty years ago—Cremorne, Rosherville, Vauxhall, and their memories are matters of history, but history often repeats itself it is said—with improvements, of course—and it may not, in fact need not, be long before Thames-side blossoms out once more into gardens and waterside retreats, and carries on its cleansed and polished surface whole armadas of pleasure craft of every description. At the present moment all this class of traffic is rigidly confined to the upper river, because there is no tide there and no mud, but clean water, pleasant river banks, waterside hostelries, tea gardens, boating clubs, hotels and accessories that would be

impossible with a tidal river. The Port business is practically confined to the stretch of the river below London Bridge, above which it would be of great public advantage if the embankments were extended on both sides to form public promenades and avenues for street traffic, which, thus diverted, would relieve the main thoroughfares.

The Embankments, beautifully laid out as they are, and well kept, would be much enhanced in value as promenades if the river was always at high water, and clean. Now one has to take the off-chance of its being high or low water as the main factor on which the pleasure of a walk on the Embankment depends. If it is low water, the river is dirty, with broad margins of foul mud; at high water the prospect is much finer, but still the nose is often offended, because the water fronting the visitor is not from up the river but from down below, from the area fouled by the offscouring of the great city, accumulated for months past, and washed up and down continuously, day and night, past the upturned noses of its citizens.

Let us see, then, in what way and where it is possible to improve the river front when the tides have been banished. In the first place the river will have become a fresh-water lake, always remaining at one level, never, even in flood seasons, rising more than a few inches above this level, and having a slow, almost imperceptible, downward current at all times. In such a river-lake it is evident that boating would be possible and pleasurable at all points where the business traffic is not too great to restrict it or make it dangerous.

First in importance must be placed the steamboat service. This has been always, and will be now—until the river is dammed and the tides kept out—run under very unfavourable conditions, such, in fact, as have made it both unprofitable and unpopular; because, with the tides running, the boats must be of sufficient power to go at fair speed against tide. The piers are difficult of access and approach, rise and fall with the tides, and provide very little depth of water at low tide for the steamers; in fact, above London Bridge they often go aground, and are necessarily confined in navigation to the middle of the river.

The steamers also stir up the mud, and thus create around them smells that do not add to pleasure or enjoyment. The piers are most unattractive, unsightly erections, suggestive of docks and barges instead of joy. . . . The entire service and its surroundings is squalid, drab, and depressing to a degree, so that it is not difficult to see why it has failed, and may yet fail, to attract the public. And yet, what a boon it would be to the poor workers if they had the run of their own river under pleasurable circumstances, and at a cost that they could afford.

Now let us turn to the other picture, with the Thames a high-water lake, and see how it will help the steamboat service. In the first place the steamboats need not be nearly as high powered, or, what is better, will be able to run with the same power safely at much higher speed than now, because there will be no tide to contend with. With a cleaner river the boats can be kept cleaner and brighter; there will be no mud stirred up and no smells to assail the nostrils. The entire width of the river will always be available for their navigation, and the piers can be removed close to the river side, where, being fixed, they will be much more accessible than now. The navigation also will be very much safer and easier than is now the case with the tides running. There will, therefore, result a great increase in the number of passengers, because the full, clean river will attract vast numbers to have a run on it who will not look at it in its present condition, and those who know how to cater for the public will soon provide for the newly-acquired taste for water trips.

But where can the people go? Up river, above Westminster Bridge, besides the well-known places of resort, such as Kew, Richmond, Battersea, Teddington, and others, there are many miles of river banks capable of being developed into riverside gardens, parades, walks, tea houses, etc. The demand will create the supply. Down river, below the crowded shipping district, there are Greenwich, with its hospital and park, Woolwich (north and south), with their riverside gardens and their public parks. Purfleet has splendid natural beauties that can easily be developed into an attractive pleasure resort. There are already old-fashioned chalk pit gardens and cliffs, tea gardens, and other attractions of a primitive kind, struggling for customers, that would go in thousands if an adequate steamboat service on the Thames lake was started. Farther down, Gravesend and Tilbury possess great natural attractions, if the approach to them by river is made easy and pleasant. Rosherville is still unsurpassed for its natural beauty, but cries out for visitors. And below the barrage will be the sea, the ever-moving shipping, the pilot boats, the departures and arrivals of ships, a moving panorama of intense interest that can be watched from the barrage parade and will be a source of unending attraction. The passage of the shipping through the locks, the sea on one side and the lake on the other, will afford plenty of amusement and perhaps sometimes of excitement. All these river attractions will fall naturally into line and increase as soon as the river itself has been made what it ought to be, a clean, fresh-water lake.

But, besides the steamboat services, it is certain that we shall see a rapid development of the boating and aquatic sports now confined to the upper river. The row boat, the launch, and in places the houseboat will be very much in evidence, and in the lower reaches sailing and yachting can be indulged in with every element of success. Regattas will again come into vogue, and under more favourable conditions than obtain at any seaside place, because carried out in a well-protected lake of ample area, where the sport can be seen from both banks.

If we cannot nowadays revive the memories and scenes of old Thames, we can at least improve on them and bring them up to date. It is evident from the foregoing that the pleasure traffic will add a large volume of employment for boatmen and riverside people, who now complain of the decay of the Port, and of want of employment. It will also enhance the value of all riverside properties, bring into use river frontages, marshes, and vast tracts bordering the river, now derelict and useless.

A reliable and regular boat service will also enable city people to live at places on the river side, many of which cannot be reached by rail. The cheapness of the boat service will make these places attractive to working people, and Professor Flinders Petrie's proposal to remove the workpeople and factories down river to the border lands of Kent and Essex may yet be realised, where they will enjoy better and healthier conditions of living than in the crowded East-end of London.

Hamburg, one of London's greatest rival ports, has long enjoyed the advantage of such a locked water area or artificial river-lake in its beautiful Alster Basin, where the pleasurable aquatics we have described have long been part of the popular recreations of the townspeople, and there is no reason why London, with its dense, hard-working population, should not enjoy equal or even greater advantages by the conversion of its river into another Alster Basin.

ESTIMATED COST.

Construction of the Barrage	£2,841,600
Land and Compensations	980,000
	£3,821,600
Pumping Station for low-lying land	474,400
Strengthening River Walls	791,300
Total	£5,087,300

REVIEWS.

GOTHIC ARCHITECTURE.

Guide to Gothic Architecture. By T. Francis Bumpus. 359*p.*, 143 *illustrations;* 8*o. Lond.* 1915. *T. Werner Laurie.*

Some time back we were able to notice a primer of *English Mediaeval Architecture* by Mr. Cyril E. Power.* It was written for students, and gave a comprehensive and detailed, if somewhat technical account of the chief factors of a mediaeval building, such as its vaulting and abutment system and roof construction. Mr. Bumpus's volume, on the other hand, deals with these and such subjects in brief and desultory fashion, and apparently has the general public in view, and not the student. Again, Mr. Power's book on every page bears witness to the fact that it was written in the year of our Lord 1912. The newer book, on the other hand, but for the imprint on the title page, might well have been written some fifty years ago. Take, for example, the primary factor of any and every building, that of planning. We are told that "Westminster Abbey is the only introduction into England of the perfect French arrangement of chapels at the extremity of a church, as a chevet." But, to say nothing of twenty-one Anglo-Norman churches known to have been so planned, there were periapsidal chevets at Croxden Abbey, Lincoln Minster, Beaulieu Abbey, Hayles Abbey, and Tewkesbury Abbey, all of them Gothic; and the last of them is still above ground. Again, we hear that "the whole of the foundations of the Cistercian abbeys were laid out . . . with square east ends." But Croxden Abbey, set out *c.* 1190, has been shown by Mr. Lynam to have had a chevet of the Westminster type, as also Hayles Abbey, as remodelled *c.* 1270; while Mr. Brakspear has shown that Beaulieu Abbey, founded in 1204, had a circumambient aisle and encircling chapels after the manner of Clairvaux. Nor can it be correct that, "with the exception of Cluny and St. Quentin, the eastern or choir transept seems never to have been adopted in France." The present writer has seen eastern transepts at St. Benoît-sur-Loire and Souvigny, and there are others at Besançon and Verdun. Again, it is a hazardous remark that "it may almost be said that there are no square-ended churches except in Great Britain and Ireland." Of France, at any rate, this is far from being true; M. Enlart tells us that "rectangular chevets are frequent in the Romanesque churches of Picardy, Ile de France, Normandy, Champagne, and Burgundy," and "in Gothic churches of small or moderate size in the Nord, Normandy, Burgundy, Champagne, and the south-west," and gives long lists of them.† Nor is Mr. Bumpus more fortunate in his remarks on the planning of the Chapter House. "Except Lincoln," he says, "the Chapter House of Westminster is the earliest of the whole series of polygonal Chapter Houses, having been begun about 1250." But at Margam, Dore, and Alnwick polygonal Chapter Houses were put up before the end of the twelfth century or but little later. Nor can one agree that "the churches built by the Crusaders in Palestine are almost exactly like the churches in the west of France at the same period." These Palestine churches are plainly derivatives from those of Provence, which was not in the west of France when I was there. As to vaulting, a treatment which omits all mention of the Norman vaults of Durham Cathedral and conjectures that St. Bartholomew's, Smithfield, may be "the earliest instance . . . of the vaulting of a central space" is original, but incorrect.

A chapter devoted to Pre-Norman Architecture is equally out of touch with modern research. Mr. Bumpus harks back to long-exploded heresies, and finds Roman churches at Reculver, Dover, South Elmham, and Castle Rising. Old Canterbury Cathedral, as set out by Professor Willis, with apse at the west as well as the east end, he believes to be seventh-century work. The most ancient of the churches of Ireland, we are told, had a nave and chancel separated by an arch. Mr. Champneys and Miss Stokes have proved that they had neither doorway arch nor window arch nor chancel arch, nor, indeed, any arch at all. "The plan adopted by the Anglo-Saxons was invariably the basilican." If this refers to the Anglo-Saxon churches in general, it can hardly be correct, for very few of the Anglo-Saxon churches surviving have aisles; Wing and Lydd may be exceptions.

It is not always easy to accept the author's chronology. Half a century ago it was good enough for the archæologists that "Edward I. built the five bays of the nave immediately westward of the transept of Westminster Abbey." As a matter of fact, the Westminster monks were in the black books of all three Edwards; for it was with the connivance of the abbot and monks that the whole of the king's treasure, some £2,000,000, was stolen from his treasury in the Abbey, *temp.* Edward I. When the Edwards wished to spend money for religious purposes at Westminster they handed it over, not to the Abbey monks, but to the dean and canons of their collegiate church, St. Stephen's, which was founded by Edward I. From architectural grounds and from the evidence of the fabric rolls it is certain that the western half of the nave was built in the latter part of the reign of Henry III.

The book unfortunately leaves off abruptly, like Mr. Moore's *History of Gothic Art in England*, in the middle of the fourteenth century; perhaps it is as well, if the author is really of opinion that the later Gothic is "associated with the flattest and feeblest treatment generally." However, against this saddening comment we may set the statement, on page 333, that "the Perpendicular surpasses every other style in matchless beauty of detail." The illustrations are numerous; some are very good, some, like those of

* Journal, 27 July 1912.
† Architecture Religieuse, 223 and 483.

Boppart and Magdeburg, are very bad; but the extraordinary peculiarity of them is that many seem to illustrate the text of some other book, and not the present volume; at any rate, if the index may be trusted, there is no reference whatever in the text of this volume to the illustrations of Monza, Torcello, Tarragona, Gollingen, St. Omer, Treves, Chalons-sur-Marne, Lucca, Auxerre, Ypres, Darlington, Strasburg, Tamworth, and many others.

FRANCIS BOND [*Hon. A.*].

AN INDIAN ENGINEER AND ARCHITECT.

Leaves from the Life of Khan Bahadur Muncherji Cowasji Murzban, C.I.E., M.Inst.C.E., F.R.I.B.A. By his son Murzban Muncherji Murzban, of the Inner Temple, Barrister-at-Law. 8*o. Bombay.* 1915.

Khan Bahadur Muncherji Murzban [*F.*], whose life story is told in this book, is the distinguished Parsi engineer and architect who filled for many years the position of Executive Engineer of the Bombay Presidency Division and was afterwards head of the Engineering Department of the Municipality of Bombay—the first native Indian to hold this responsible appointment. He is the architect of several important public buildings in Bombay, and has been a Fellow of the Institute since 1889. Judging from the illustrations given in the book, his architectural work, which consists generally of a clever adaptation of Italian Gothic, is of a very pleasing character.

The author naturally handles this sketch of his father's life with a certain degree of reticence and reserve. Khan Bahadur Muncherji Murzban rose from the lowest rung of the ladder of Government service to the highest attainable in the branch to which he was attached, and the son has reason to be proud of his parent's achievements. Material for the book has been collected mainly from Government records, journals, newspapers, letters, diaries, and Parsi publications. Born in 1839, M. C. Murzban, after completing his education at the Elphinstone High School and the Poona College, joined the Government School of Engineering at Poona. In 1856 he passed the examination for admission into the Public Works Department: in 1866 he was gazetted special assistant to the Government Architectural Executive Engineer, and in 1876 was appointed Executive Engineer of the Presidency. The title of "Khan Bahadur" was conferred upon him at Delhi on the occasion of Queen Victoria's assumption of the title of "Empress of India," and he has on several occasions received the special thanks of the Government of Bombay and the Government of India for valuable services rendered to the State. In recognition of his services the Bombay Government rescinded in his favour the regulation making retirement compulsory at the age of fifty-five. Before he attained that age, however, he exercised the option of retiring on a pension, and accepted the appointment of Executive Engineer to the Bombay municipality. A Minute of Council records the Governor-General's regret that Mr. Murzban's long and meritorious service under Government had come to an end. In 1890 the order of "C.I.E." was conferred upon him.

Khan Bahadur Murzban held the appointment of Executive Engineer to the municipality of Bombay for eleven years, and rendered invaluable service to the city, especially by the improvements he brought about in its sanitary condition. During part of this time the district was badly ravaged by the plague, and the work of the establishment of all temporary plague hospitals and other engineering works were placed in his charge. A scheme he devised for reclaiming low-lying swamp lands resulted in the transformation of an area which had been a source of annoyance and nuisance into cultivable land capable of yielding quite a respectable annual revenue. In accordance with his suggestions important amendments were decreed in the Buildings and Streets Sections of the Municipal Act and in the By-laws thereunder. Khan Bahadur Murzban has also carried out much private philanthropic work. Through his exertions large sums were raised for the provision of sanitary dwellings for the Parsi poor. These buildings are constructed on the principle of the Peabody dwellings in England, and were all erected from his designs and under his superintendence. He was the founder of the Parsi Lying-in Hospital which has proved such a boon to the community, and not only acted as architect for the building, but collected funds for its erection. Another institution which grew out of an idea of his is the Hospital which has been established in Bombay for the exclusive use of the Parsi community.

Khan Bahadur Murzban has won the respect and esteem not only of his own countrymen, but of the numerous European officials with whom he has been associated; some evidence of this is afforded by the fact that a suburb ("Murzbanabad" in Audheri) has recently been named after him. When the time came for his retirement from the Municipal Department, he was pressed by the Bombay Corporation to continue in office. He declined, but consented to remain for another year, as no one to fill the position could be found in India, and candidates had to be sought in England. He retired finally in December, 1903, when a civic dinner and other entertainments were given in his honour.

Following the custom of the Parsi community of his young days—a custom that still prevails among the Hindus—Khan Bahadur Murzban was but a youth of fourteen when he entered the married state, and he was a father at sixteen. He is represented in a frontispiece to the book, a dignified patriarchal-looking figure, seated with his venerable wife, the centre of a group of graceful women, handsome men, and pretty children, their descendants unto the fourth generation.

9 CONDUIT STREET, LONDON, W., 22*nd January* 1916.

CHRONICLE.

R.I.B.A. Record of Honour : Twenty-third List.

Honours for Members at the Front.

FRY, PETER GEORGE [*Licentiate*], Major, 2nd Wessex Field Co., R.E. (T.F.), has been made a Companion of the Distinguished Service Order, for distinguished service in the field.

MAULE, H. P. G. [*F.*], 2nd Lieut. (temp. Captain), Hon. Artillery Company (T.F.), has been awarded the Military Cross.

Serving with the Forces.

The following is the Twenty-third List of Members, Licentiates, and Students R.I.B.A. who have joined the Forces, the total to date being 53 Fellows, 400 Associates, 205 Licentiates, and 264 Students :—

ASSOCIATES.

Cotman, Grahame : 2nd East Anglian Field Ambulance, R.A.M.C.
Gilmour, S. A. : Army Ordnance Corps.
Houston, Wm. W. : 2nd Lieut., 10th Royal Irish Fusiliers.
Notley, Albert Carr : Artists' Section, 104th Provisional Bn.
Pryke, Louis Edward : Lieut. and temp. Inspector of Works, Staff for R.E. Services.

STUDENTS.

Ashworth, J. R. : Lieut., 5th Bn. East Lancs. Regiment.
Bell, E. A. : Corporal, Yorks Hussars.
Couchman, H. W. : 153rd Battery, R.G.A.
Dryden, T. A. : O.T.C.
Graham, Richard David : Army Service Corps.
Greensill, G. E. A. : East Riding Field Co., R.E.
Grummont, R. T. : Artists' Rifles.
Hector, A. O. : Corporal, Princess Patricia's Canadian Light Infantry.
Jones, Harold : 19th Bn. Royal Fusiliers.
Lumb, J. H. : 2nd London R.E.
Morgan, T. M. : O.T.C.
Norris, W. G. : Army Ordnance Corps.
Paxton, N. R. : O.T.C.
Prosser, D. S. : O.T.C.
Richards, A. I. : O.T.C.
St. Leger, C. D. : 2nd Lieut., 13th Hampshire Regt.
Shipley, R. R. : 2nd Lieut., Northumbrian Div. R.E.
Smith, C. W. : Artists' Rifles.
Thirtle, T. O. : R.A.M.C.
Williams, L. J. : 2nd Lieut., 2/5 Bn. Duke of Cornwall's Light Infantry.

Notes re Architects on Service.

Lieut. W. Milburn [*A.*] has been promoted Temporary Captain, Royal Field Artillery.

Mr. Alfred Hewlett Edwards [*A.*], formerly of the R.N.V.R. Anti-Aircraft Corps, has been gazetted 2nd Lieut., Kent (Fortress) R.E.

From a chalk drawing.

GEORGE ALEXANDER KAY, *Associate.*
2nd Lieut., Sherwood Foresters, 2nd Notts and Derby Regiment.
Killed in action [see p. 49]

ARTHUR MAXWELL PHILIPS, *Licentiate.*
Captain, 11th Battalion King's Own Yorkshire Light Infantry.
Killed in action [see p. 66].

R.I.B.A. War Record.

A Record is being kept at the Institute of the names of all members of the Architectural Profession who have joined the Military or Naval Forces of the Crown for the period of the War. The list includes practising architects, their assistants and pupils, and architectural teachers and students, whether attached or not to the R.I.B.A. or other architectural body. So far, some 2,100 names have been entered on the Record, but lately, in spite of the recent boom in recruiting, very few names have been received other than those of members of the Institute. The co-operation of members and non-members is specially invited in order to make the Record known and to bring about its completeness. Names, with rank and regiment where possible, should be sent to the Editor, JOURNAL R.I.B.A., 9 Conduit Street, W.

Memorial to the late Albert Edward Lowes [*A.*].

A memorial tablet erected to the memory of Private Albert Edward Lowes [*A.*], Army Service Corps, killed in action in Flanders on the 26th April 1915, was formally unveiled by Major-General H. A. K. Montgomery in Jesmond Parish Church, on Saturday afternoon. The tablet was inscribed :—" In memory of Albert Edward Lowes, A.R.I.B.A., of the Northumberland Divisional Train, A.S.C. Born the 26th August 1888 ; killed in action at Ypres, 26th April 1915. A devoted Christian, a skilful architect, a good soldier. *Ars longa, vita brevis.* Erected by his mother." Canon Inskip conducted the service, and afterwards in a brief address recounted the career of the young architect. His spare time had been spent as a Territorial, and joining the A.S.C. he became associated with his old comrades of the 6th Northumberland Fusiliers, going to the front on the 18th April. In a position of great danger he was giving refreshment to wounded comrades when a shell exploded and he was killed. His portrait appeared in the JOURNAL for 12th June last.

University of London : Lectures on War Memorials.

Professor S. D. Adshead [*F.*] will deliver six Public Lectures on War Memorials, illustrated with lantern slides, at University College, Gower Street, on Wednesdays at 5.30 p.m., beginning 26th January.

SYNOPSIS OF COURSE.

Lecture I.—The significance of the War Memorial in its relation to the National and Political outlook. An architectural treatment is necessary to a great conception, and sculpture as making the most direct appeal to human sympathy.—Symbolic and realistic methods of expression.—The War Memorial as an incentive to patriotism and hero worship : Nelson, Napoleon, Garibaldi, Wilhelm I. and Bismarck as War Gods.

Lecture II.—The architectural attributes of War Memorials : their origin and traditional use :—The pyramid, obelisk, column and arch.

Lecture III.—The Sculptural attributes of War Memorials : their origin and traditional use : The decorated monolith, the group, equestrian statue and single figure.—Decorative symbols of war and victory.

Lecture IV.—The War Memorial as a great shrine, a Pantheon, a Valhalla.

Lecture V.—The Public Place, the Avenue, the Bridge : decorated and dedicated to commemorate a war.

Lecture VI.—The War Memorial as a monument on a battlefield, as a Mausoleum, or as the tomb of a military hero.

Admission is free by ticket to be obtained from the Secretary, Mr. Walter W. Seton, D.Lit. Application for tickets must be accompanied by a stamped addressed envelope.

Training Centres for Munition Workers.

With a view to the services of educated men and women being utilised as munition workers after a short course of practical training, classes have been established at the following educational centres, and persons willing to engage in the work should apply to the training centre of their district :—

METROPOLITAN AREA.

Battersea Polytechnic.
Brixton School of Building. (For lead burners and machine tools.)
Croydon Polytechnic.
East Ham Technical School.
East London College.
King's College. (For lead burners & machine tools.)
Northern Polytechnic.
Poplar School of Engineering.
Shoreditch Technical Institute.
South-Western Polytechnic.
Wimbledon Technical Institute.

ENGLAND AND WALES.

Aston Technical School.
Birmingham Technical School.
Blackburn Technical School.
Bolton Technical School.
Bournemouth Technical School.
Bradford Technical School.
Brighton Technical School.
Bristol University.
Burnley Technical School.
Cardiff Technical School.
Colchester Technical School.
Derby Technical School.
Erith Technical School.
Grimsby Technical School.
Halifax Technical School.
Lancaster Technical School.
Leeds Technical School.
Leeds Cockburn School.
Leeds University.
Liverpool University. (For lead burners and machine tools.)
Liverpool Technical School.
Manchester Technical School. (Lead burners only.)
Newport (Mon.) Technical Institute.
Nottingham University College.
Oldham Technical School.
Plymouth Technical School.
Portsmouth Technical School.
St. Helens Technical School.
Salford Technical School.
Sheffield University.
Smethwick Technical School.
Sutton Coldfield Technical School.
Swansea Technical Institute. (Lead burners only.)
Walsall Technical School.
Wednesbury Technical School.
Wellingborough Technical School.
West Bromwich Technical School.
Wigan Technical School.
Willenhall Technical School.
Tunbridge Wells Technical School.
York Technical School.

SCOTLAND.

Aberdeen, Robert Gordon's College.
Edinburgh, Heriot Watt College.
Edinburgh, Tynecastle School.
Glasgow, Royal Technical College.

St. Paul's Cathedral.

Attention is again being called to the danger which threatens the fabric of St. Paul's, for a renewed appeal is being made for funds to consolidate the piers and buttresses, and thus secure the safety of the Cathedral for the generations to come. Two years ago a sum of at least £70,000 was asked for on behalf of the Cathedral Preservation Fund, and about half that amount had been obtained when the War interrupted the flow of subscriptions. Canon Alexander, treasurer of St. Paul's, in the course of a statement on the structural condition of the building, said that the vast and imperfectly distributed weight of the dome has caused the present problem. The pier on which work has been going forward for a long time—standing at the critical point of pressure towards the south-west—has been reported in the last few weeks to be showing even graver conditions than had been anticipated. The danger is not so much one of recent settlement as of " senile decay," accelerated by the gradual pressure of the dome, the rusting of iron, internal degeneracy, and extremely inadequate repairs executed at some earlier period. It was said recently that " only the loyalty of the materials to one another " has kept the fabric safe so far. Some of the most delicate work, thus taken in hand just in time, has already been carried out, but it is not known what difficulties may arise elsewhere.

Mr. Ralph Adams Cram on the Ruined Architectural Monuments of Belgium.

In the last issue of the JOURNAL were quoted from the *Journal of the American Institute of Architects* extracts from a Report by a German Professor, Herr D. Clemen, of Bonn, dealing with the condition of architectural monuments in Belgium after the German visitation. Professor Clemen's statements come in for some vigorous criticism from Mr. Ralph Adams Cram [*Hon. Corr. M.*] in a later issue of the *A.I.A. Journal*. Mr. Cram says :—

" Official Prussian reports do not necessarily prove anything. Accepting this one at its face value, however, it proves both too little and too much.

" ' Nowhere on Belgian ground have irreplaceable architectural works been lost,' says Professor Clemen, ' not a single one of the great monuments of Flemish or Brabant art has been wrecked. . . . In not a single case will insuperable difficulties prevent a complete restoration, either from a technical or historical point of view.'

" This blanket statement (the high optimism of which must arouse our admiration) is unfortunately not substantiated by Professor Clemen's detailed admissions, which are (also unfortunately) amply supported by independent testimony and photographs. A cursory examination of his lists shows that, even if they are not wholly destroyed, such buildings as St. Peter's and the University in Louvain ; St. Romuald and St. Mary's, Malines ; St. Gommarius, Lierre ; St. Mary's, Dinant ; St. Mary's and the Town Hall, in Dendermonde ; St. Martin's, Alost, have all suffered damage varying from ' many traces of shrapnel ' to being ' completely burned out.' Professor Clemen's optimism, which shows itself in the remark that ' The fate of much-fought-over Ypres is still undecided ' is again sadly ill founded, for we know now that the great Cloth Hall, one of the most ' irreplaceable ' architectural monuments in Belgium, and a unique example of early civic architecture in the Middle Ages, has been utterly destroyed, except so far as some of its crumbling and blasted walls are concerned, and the same is true of the Cathedral of St. Martin. It is to be hoped that Professor Clemen may have better ground for his cheerfulness in the case of the other monuments over which he is so reassuring.

" Whether this is so or not, his own specifications prove the case hopeless. The trouble is that he evidently accepts the now discredited nineteenth century doctrine that a clever restoration is as good as, or better than, a possibly weather-worn original. He speaks of easily achieved ' complete restoration ' ; of a destroyed tower where, ' fortunately, its exact counterpart remains as an indication to help in the restoration ' ; of shattered fifteenth and sixteenth century windows, where ' provisional measures are being taken to preserve all possible material for future restoration ' ; of walls and gables of ' completely burned out ' buildings that still ' stand upright, and will permit the reconstruction of the roof ' ; of ' all this damage ' that ' is easily repaired.'

" Now, against all this I put a fine saying by Mr. La Farge in the same issue of the Journal, where, in referring to Rheims Cathedral, he says, ' Restore it ? How, in Heaven's name, can you restore it ? Who knows enough ? Nobody ! There isn't an architect living who knows enough to rebuild a destroyed mediæval church, . . . And if there were such a man, he still would be helpless without the artists and the craftsmen who made of the French cathedrals a true fairyland of expression.'

" Exactly ! Mr. La Farge's words should be enacted into fundamental law in France, Belgium, Poland, Germany—wherever, after the War, poor, shattered buildings offer themselves for Professor Clemen's ' restoration.' Ypres is utterly gone, Arras is utterly gone, and each was a glory of perfect beauty ; they may not be rebuilt ; let their pitiful crags of blasted masonry stand forever, exactly as they are. Let Rheims stand as it is (with its roofs replaced, and plain glass in its shattered windows, for protection), but let us have not one cubic foot of architectural forgery. Let the churches in Louvain, Malines, Lierre, Dinant, Dendermonde, Aerschot, Alost, and the innumerable other ' ecclesiastical buildings ' that have ' suffered more or less damage ' but are ' not monuments of any important value from the point of view of art history,' be made structurally secure, and again ' valuable ' in a measure ' from the point of view ' of religion, but let them be scrupulously preserved from Professor Clemen's ' restoration.'

" They are gone, in whole or in part, as monuments of art ; keep them as they are ; like Rheims, they will tell their story to all eternity, and tell it better in their ruin than in any possible rehabilitation.

" Apologies and explanations neither justify nor reassure ; I confess I like von Bethmann-Hollweg's frank admissions in the Reichstag better than von Mach's extenuations, and Professor Clemen's cheerful reassurances less

than the straightforward declaration of Major-General von Disfurth, which I append hereto.

" ' No object whatever is served by taking any notice of the accusation of barbarity levelled against Germany by our foreign critics. Frankly we are and must be barbarians, if by this we understand those who wage war relentlessly and to the uttermost degree. Every act committed by our troops for the purpose of discouraging, defeating, destroying our enemies is a brave act and a good deed and is fully justified. It is of no consequence whatever if all the monuments ever created, all the pictures ever painted, all the buildings ever erected by the great architects of the world be destroyed, if by their destruction we promote Germany's triumph over her enemies who wish her complete annihilation. The commonest, ugliest stone placed to mark the burial-place of a German grenadier is a more glorious and venerable monument than all the cathedrals of Europe put together, . . . our troops must achieve victory—what else matters ? ' "

The Martyrdom of Belgium.

The *Times* correspondent in Paris states that the Belgian Government has compiled statistics as to the destruction wrought by the German Army in Belgium. The total number of houses and public buildings destroyed is 18,207, and details with regard to Flanders, Limburg, Hainhault, and Luxemburg are lacking. The destruction was most complete at Spontin, where 127 out of 130 houses were burnt to the ground, and at Dinant 1,263 out of 1,375. At Louvain, 1,120 out of 7,433 houses were destroyed, while 1,000 houses were pillaged.

With the British Army in France.

A further instalment of the journal of Lieut. W. Henry Ward [*A.*], who is serving in the 10th (S.) Battalion West Yorkshire Regiment in France, appears in the *Architectural Association Journal* for December. Under date 15th November 1915 he writes :—

So long as I hold my present appointment here there is not likely to be much " battle, murder, or sudden death " about my experiences, nor even extreme discomforts or exposure.

An average day is spent somewhat like this. Wilson comes to my hut soon after 7 with a tiny jug of hot water, which I sometimes supplement by a little more, heated on a " Tommy's Cooker." After dressing I slither across the meadow, half of which has long degenerated into a slough of despond, through the stable yard, where Maule's Water Patrol lives and our two servants have a cavernous little kitchen, and over the street to Maule's office. There, if the wind is in our quarter, the room is full of smoke and the office orderly is on his knees struggling with a recalcitrant stove, which often has to be unhitched from its pipe and carried out to be dealt with summarily in the backyard. Other days it will get red-hot without any provocation, in which case we fall to and make toast. Presently the tea and bacon make their appearance, and soon after the Patrol men and their Corporal come in to have their yesterday's reports on the streams, ponds, and ditches read, and to receive orders for the day. Meanwhile I make a tour of the village, calling on the Adjutant of the R.F.A. to find out whether his batteries really need a mess hut and a sleeping apartment of spacious dimensions for every man in them, or to tell him that they can have none at all, as the boarding has run out, or to complain that the wagons he promised to send daily to collect broken bricks from neighbouring ruins only turn up when it pleases them ; then to the Adjutant of the R.E., to impress upon him that the work of hut building cannot be proceeded with without boards, corrugated iron, roofing felt and nails, even if we have a supply of large timbers, or to try to claim a second circular saw for sawing up scantlings into weather-boarding or cutting pilkets ; then to the General's A.D.C., to ask for a motor to go to one of the neighbouring towns to buy stoves ; then to the Q. office, to interview the Colonel, to obtain more transport for carting materials, or decisions as to the site of a camp, or the order of importance of various works.

By this time, or sooner, an orderly has arrived from the Hutting Dumps, two miles off, with a message from the Quartermaster-Sergeant who is in charge there and of all the scattered works, and a bundle of 80 or 100 letters from the hutting party to be censored at my leisure, and taken later to the anteroom of the General's Mess to be stamped by the officer of the guard *pro tem.*

The rest of the morning is spent in interviewing quartermasters and other officers who come in to demand all manner of buildings or materials for them, and are firmly convinced that whoever else goes unhoused their unit at least must have everything it wants. They sometimes take it quite as a personal insult when I blandly inform them that there is nothing for them at the Dump, or that others have to be served first, or, on the other hand, are as grateful as if I were conferring a personal favour when I can give them something.

After lunch I often walk over to the Dump to consult with the Q.M.S., who is always cheery, resourceful, and businesslike, and keeps his gang of 160 men going at their various jobs, scattered as they are all over the divisional area. One is putting up partitions in the Divisional Baths, another erecting huts for patients at the Divisional Rest Station, another building police huts here, and officers' living huts there. Another building a new camp for an infantry brigade, and yet another repairing an old one. While, finally, one gang is kept employed putting up quartermaster's stores for each battalion in turn.

In the evening, correspondence with various units about their requirements or in connection with claims, censoring, and writing one's private letters, keeps one pretty fully occupied

Precautions against Bombardment in Italy.

Mr. Whitney Warren, the American architect, who has been travelling in Italy and making a study of the precautions taken by the Italian Government to insure the preservation of works of art in the event of bombardment by hostile aircraft or otherwise, in a letter which has been made public, says :—

To begin with Milan and its cathedral, the entire glass has been removed, in itself a tremendous undertaking. Thus we are assured that none of it will be destroyed should the city be visited by aeroplanes, except that the temptation to destroy the beautiful is a bait so powerful to the enemy that the risk might be run in view of the magnificence of the quarry. For, in spite of Ruskin's criticism of it, I claim that no more beautiful and majestic work of man exists than this great vessel covered with its mantle of lace ; nothing more vast or of proportion more perfect has man conceived. The roof is entirely of stone, so that the danger from fire, of which Rheims suffered the martyrdom, is infinitesimal. Certain objects from the treasury have been removed ; otherwise the monument remains intact in its wonderful entirety.

At Santa Maria delle Grazie " The Last Supper " of Leonardo has been protected by a wall of sandbags built at a distance of about two metres from the wall and, further, by hanging a fireproof curtain in front of it. In all the churches movable objects of vertu have been placed in safety, as those in the museums.

At the Castello Sforza, which I visited under the guidance of Signor Beltrami, the Conservator, the best pictures, glass, tapestries, furniture, &c., have been removed where fire cannot harm them, for the Castello is roofed with wooden beams. The building has been admirably restored by Signor Beltrami, who has devoted thirty years to the work of rebuilding it and accumulating the treasures it contains. . . .

From Milan I ran down to the Certosa di Pavia, where the same precautions had been taken. . . .

On my way back to Venice I stopped at Verona and there found the same precautions taken in all the churches. The tombs of the Scaligers are buried to a certain extent in sand, while the statues are packed in straw covered with a thick coat of cement, sufficient to protect them against fragments of bombs. These precautions were made necessary by the fact that ten days before an enemy aeroplane had dropped a number of projectiles on the city. Should one unhappily fall upon St. Zeno or St. Anastasia, the most beautiful sixteenth-century ceilings extant will doubtless be destroyed, as no precaution against their destruction is possible. . . .

At Venice all paintings have been removed in the museums, churches, and the Ducal Palace, including even the immense Paradise of Tintoretto. Sandbags protect the exterior and the interior of San Marco, the Loggia, and the Ducal Palace, and the Colleoni Statue is covered with a roof designed to shed bombs should they fall upon it. A bomb bursting upon the cupola of St. Mark's might not pierce it, but in all probability it would dislodge the mosaics by the shock, causing them to fall and obliterating one of the glories of the universe. The only way of guarding against this is to cover the entire interior with strong canvas, securely glued against the mosaics. While this is under contemplation for here and for Torcello, it is such a formidable task that the authorities hesitate to undertake it.

As regards Venice as a whole, alas! the precautions taken are infinitesimal. I tremble at the possibilities. Should misfortune befall Venice, it would be the greatest calamity that could happen to civilisation and humanity. It is our great source of inspiration, and has been ever since it existed. That men for a noble cause be killed matters not, but that their works of vertu be destroyed is a crime abominable and a loss irreparable.

King's College Hospital.

The Hospital devoted several pages of its Christmas Number to an account and criticism of the new buildings of King's College Hospital, Denmark Hill, and mention is made of the exhaustive Paper by the architect, Mr. Wm. A. Pite [*F.*], dealing with the buildings, their construction and equipment, which was published in the Institute JOURNAL for the 3rd and 24th April last. The writer lays stress on "the educational value of Mr. Pite's creation," and characterises the work as "hospital planning at its best." "Mr. Pite," he says, "possesses the invaluable gift of taking infinite pains. When he was entrusted with the commission to provide London with the latest, most up-to-date and complete hospital buildings possible, including those for a medical school, a special pathological block, an unusually spacious out-patient department, a bathing establishment, and extensive casualties accommodation, he evidently made up his mind to set himself to the creation of a type of hospital which would mark a new departure and take a first place when compared with existing British hospitals. This policy of the architect's has been pursued with untiring zeal, and has entailed upon him an enormous amount of extra labour and special thought and study. Mr. Pite has evidently sought the counsel of those who had an intimate personal knowledge from actual and recent experience of the ever-increasing requirements which new conditions and innumerable developments in modern science have caused in methods of treatment. This is abundantly evidenced in the departments and units of this hospital. The result as a whole justifies the brains and labour expended upon the work, for the new King's College Hospital is undoubtedly a creation which everybody who wishes to learn how to cover the maximum of ground demanded by modern conditions in hospital construction should study and master. The buildings present many new features in detail, and it is satisfactory to find that tradition has not been allowed, so far as we could discover, to interfere with or prevent a full carrying out of the whole conception of what new hospital buildings in these days should include. All honour to Mr. Pite, and warm and hearty congratulations and thanks to him for the service he has thus rendered in making a distinct advance towards the ideals which must ever be the aim of the most capable administrators and architects in collaboration, and of most practical and efficient members of the profession of medicine too."

The Pagoda, Kew Gardens.

"G.D.P." in the *Bulletin* of the Royal Botanic Gardens, Kew (No. 9, 1915), gives the following particulars of the Pagoda which forms so interesting a feature of the Gardens :—

The Pagoda was built in 1761–2 to the design of Sir W. Chambers. As originally built, the main roof with the ornamental chains and hoops to the terminal pole were of copper, double gilded. The minor roofs were covered with highly coloured iron plates, and ornamental dragons crouched at the hip terminals of the roofs. The dragons were in wood, and treated with highly coloured enamels. These features existed up to about 1820. But the iron cover plates of minor roofs and the wooden dragons must have perished and been removed soon after, when the roofs were slated.

The severely straight lines of these roofs—now shorn of dragons and Eastern colour—was much lamented, and in 1845, when "an expensive scaffold had been erected round the Pagoda to paint the wood, &c., point the brickwork and erect a new terminal pole," Sir W. J. Hooker suggested that it was a fitting opportunity to restore the original features of the Pagoda by fixing new "metal or glass" dragons to the angles of the roofs. This was supported by Mr. Decimus Burton, who, however, wished to improve on the original design. His sketch of the proposed alterations is still to be seen in No. 3 Museum. He suggested that in addition to restoring the dragons, the eaves should be curved up at the angles, and the roofs covered with copper, and that both roofs and brickwork should be painted to harmonise better with a Chinese structure. Projecting bells were to be hung at the hip terminals, and chains were to hang from the terminal pole to the eaves of the main roof. But the estimated cost of £3,500 for these alterations made their execution impossible. Sir W. J. Hooker's suggestion to replace the dragons, and so restore the Pagoda to the original design, was estimated to cost £850, and proved also too costly for acceptance.

Nothing daunted, he returned to the charge in 1856, renewing his suggestion of 1845 for the restoration of the dragons, &c., but they were again "postponed for another year," and so the Pagoda remains to this day.

On the occasion of executing the periodic painting and repairs at the Pagoda this summer—1915—investigation was made to discover the cause of so much rain coming through the roof and ceiling.

The roof generally was found to be covered with copper. It is in excellent condition, and shows no signs of dis-

turbance or repair since its original construction. The pole and its flashing, however, were found to be so defective as to need renewing at once. Authority having been obtained for this, a careful survey was made with a view to seeing how the new pole could best be got into position. All the evidence obtained, both inside and out, went to show that the old pole, about 30 feet long, had been got up by an outside scaffold and derrick, and dropped down through the hole made in the level table at the apex of the roof. But as all the painting at the various levels had been done from bracket or cantilever scaffolds, which are not adapted for, or high enough to get a pole up and into position from the outside, a plan was devised of getting the new pole up by a cantilever fixed on the top floor and passing through the window. By this the pole was hoisted through the window of the ninth floor, up through the staircase well, and through the ceiling trap-door into position.

On taking down the old pole, a pencil note was found on the lower end, under the roof, recording that "this pole was erected by J. Wickens, August 1st, 18(?)7." A knot on the top of the third figure made this date very uncertain. But fortunately, on uncovering the table round the pole at the roof apex, two more records were found of the same character, with the definite date of 1867. This definitely fixes the date of erection of the pole just taken down.

A further interesting discovery was made of a cut-in date of August 20th, 1825, on the bed-plate on which the pole stands, and it is fairly certain that a new pole would be erected at the same time as the insertion of the bed-plate.

There is evidence, therefore, that the various terminal poles were erected at the following dates—when the Pagoda was new in 1762, and in August 1825, June 1845, August 1867, and the last in September 1915.

The "life" of these poles thus varies from 20 years upwards. It is more than probable, however, that the first pole did not last till 1825, but was renewed some time about the end of the eighteenth century. The present pole is therefore the fifth or sixth pole erected, and it is hoped that as this has been creosoted it will last longer than any of its predecessors.

Reinforced Concrete Houses in Garden Suburb.

A number of houses in the Renfrew Garden Suburb have been erected in reinforced concrete from the designs of Mr. W. Inglis, architect, of Glasgow. The external walls are built of concrete blocks, with a 2-inch cavity and a total thickness of 9 inches. Externally they are treated with rough-cast. The interior partitions are formed with coke-breeze concrete slabs. The accommodation varies from two to five compartments, and each house has a bathroom, scullery, and pantry. The living-rooms in the smallest houses are 12 feet square. The rents range from £15 to £27 per annum.

Mr. McKim's Royal Gold Medal.

The House Committee of the American Institute of Architects has arranged for a cast to be made of the Royal Gold Medal presented on the recommendation of the R.I.B.A. to Mr. Chas. F. McKim in 1903, the original of which, at the request of Mr. McKim's daughter, is kept in possession of the American Institute. The cast will be gilded and appropriately placed in the Octagon (the premises of the Institute), and the original will be retained in a safe-deposit box.

The R.I.B.A. Seventy Years Ago.

Mr. Charles Lynam, F.S.A., of Cliff Bank House, Stoke-on-Trent [*Fellow*, 1888], who has just been placed on the list of Retired Fellows, was admitted a Student of the Institute in the far-off days of 1847. Recalling the event in a recent letter to the Secretary, he says: "I can truly say that my student days at the R.I.B.A. were amongst the happiest of my life. Then the rooms of the Institute were in Grosvenor Street, and a man in a velvet and white uniform opened its doors. Lord Grey was President—a good, sound, practical man and the most perfect gentleman. Cockerell, Donaldson, Tite, and others were leading lights, and it was a supreme boyish honour which always awaited my visits." Mr. Lynam is in his eighty-seventh year, enjoys almost complete exemption from bodily infirmity, and has still, he says, "a relish for our glorious profession."

Scarborough Spa Buildings Assessorship [pp. 29, 30, 55].

In the interests of accuracy it may be well to point out that Mr. Frederick Pepys Cockerell (not Mr. S. P. Cockerell) was the assessor for this competition, and that it took place shortly before his death in 1878—three years later than given at the references quoted. The drawings were sent to Manchester Square from Scarborough, and went astray for some days at Chalk Farm. I recollect Mr. Cockerell's care in examining the designs and awarding marks under certain headings to help him in the decision.

HARRY SIRR [*F.*].

London, Past and Present.

The Special Winter Number of *The Studio* is to deal with London, Past and Present, and will form a companion volume to the recent Autumn Number, "Paris, Past and Present." The editor announces that he is dealing with the subject in a unique and interesting manner, and is receiving the co-operation of many distinguished artists whose drawings, etchings and lithographs of London represent the most important phase of their art. In addition there will be given reproductions of old engravings and drawings showing views of London as it was during the last centuries, some of them being printed in colours. The text will be contributed by Mr. Malcolm C. Salaman, who during a lifelong residence in London has studied intimately its various aspects and historical associations.

The Society of Dilettanti's "Antiquities of Ionia."

The Society of Dilettanti have placed at the disposal of members of the R.I.B.A. 50 copies, at two guineas each net, of the new volume shortly to be issued of *Antiquities of Ionia*, of which a notice appeared in the JOURNAL for 4th December last. The ordinary publishing price is four guineas net. Mem-

bers desiring to avail themselves of this offer should send in their applications to Mr. George A. Macmillan, Hon. Secretary of the Society of Dilettanti, St. Martin's Street, London, W.C., at the very latest by the 31st January 1916.

Books Received.

Gothic Architecture in France, England, and Italy. By Sir Thomas Graham Jackson, Bart., R.A., F.S.A. 2 Vols. With 191 plates (6 of which are in colour), and 229 illustrations in the text. Cr. 4o. Cambridge 1915. £2 12s. 6d. net. [Cambridge University Press.]

The Arts in Early England: Saxon Art and Industry in the Pagan Period. By G. Baldwin Brown, Watson Gordon Professor of Fine Art in the University of Edinburgh. With 8 plates in colour, 158 half-tone plates, 29 line illustrations, and 8 maps. Vols. III. and IV. 8o. Lond. 1915. 21s. net each vol. [John Murray, Albemarle Street.]

Form and Colour. By Lisle March Phillipps, author of "The Works of Man." 8o. Lond. 1915. 7s. 6d. net. [Duckworth & Co., 3 Henrietta Street, Covent Garden.]

A Treatise on Hand Lettering for Engineers, Architects, Surveyors, and Students of Mechanical Drawing. By Wilfrid J. Lineham. Fo. Lond. 1915. 7s. 6d. net. [Chapman & Hall Ltd.]

The Furniture Collector: An Introduction to the Study of English Styles of the Seventeenth and Eighteenth Centuries. By Edward W. Gregory. With 55 illustrations of Typical Pieces of Furniture from Public and Private Collections. 8o. Lond. 1915. 5s. net. [Herbert Jenkins, Ltd., Arundel Place, S.W.]

The Mellards and their Descendants, including the Bibbys of Liverpool, with Memoirs of Dinah Maria Mulock and Thomas Mellard Reade. By Aleyn Lyell Reade. 4o. Lond. 1915. [Osbaldestre House, Norfolk Street, Strand.]

The Reinforced Concrete Regulations of the London County Council. A Handy Guide containing the full text, with explanatory notes, diagrams, and worked examples. By Ewart S. Andrews, B.Sc. Sm. 8o., 2s. 6d. net. [B. T. Batsford, 94, High Holborn.]

Thomas Jefferson and the First Monument of the Classical Revival in America. By Fiske Kimball, Ph.D., M.Arch., Assistant Professor of Architecture, University of Michigan. Reprinted from the *Journal of the American Institute of Architects*.

The Decorators' Diary and Trade Year Book, 1916. Edited by Arthur Seymour Jennings, F.I.B.D. 4o. Lond. [The Trade Papers Publishing Co., Ltd., 365 Birkbeck Bank Chambers, High Holborn.]

THE EXAMINATIONS.

Preliminary.

The Preliminary Examination, qualifying for registration as Probationer R.I.B.A., was held in London and Manchester on the 23rd and 28th November, 1915. Of the 30 candidates admitted 17 were exempted from sitting and the remaining 13 were examined, with the following results :—

	Examined.	Passed.	Relegated.
London . . .	8	6	2
Manchester . .	5	4	1
	13	10	3

The passed and exempted candidates—numbering altogether 27—are as follows :—

ACTON : George Raymond, Ashford House, Rainbow Hill, Worcestershire.
ADAMS : Ernest Harry, 5 Beatrice Avenue, Norbury, S.W.
AUSTIN : Leslie Magnus, 40 Wood Vale, Forest Hill, S.E.
BROAD : Vivian Ernest, 6 Mulgrave Road, Croydon.
CALTHORPE : William Frederick Dennis, 51, Emma Place, Stonehouse, Plymouth.
CAMPBELL : Edwin, "Aberdour," Park View, Blyth, Northumberland.
CHANDRA : Ganesh Chandra, Govt. of India Scholar in Architecture, The Empire Hindu Hotel, Fort, Bombay.
CHICKEN : Charles Edward, 94 Grosvenor Road, Belvedere.
DIXON : Percy Sidney, 128 Algernon Road, Lewisham, S.E.
FAGG : Tom Corbett, 44 Lewisham Park, S.E.
GIBSON : Reginald Campbell, 12 Brynmill Crescent, Swansea.
HENRIQUES : Elias Cosmas, c/o Architectural Association, 18 Tufton Street, Westminster, S.W.
HUTTON : Lorne De H., c/o Architectural Association, 18 Tufton Street, Westminster, S.W.
JENKINS : Edward Leoline, 83 Nolton Street, Bridgend, Glam.
KWOK : Jen Sing, 63E Drayton Gardens, S. Kensington, S.W.
MATHER : John, 20 Barker Street, Harpurhey, Manchester.
PARK : Werner, 39 Dovey Road, Moseley, Birmingham.
PRIEST : Alfred Llewellyn, 17 South Luton Place, Adamsdown, Cardiff.
ROBERTS : Reginald Victor, 50 Otter Street, Derby.
SEATON : William George, 22 Mackintosh Road, Pontypridd, Glam.
SIMPSON : Douglas James, Osborne House, Cotham Park, Bristol.
SMITH : Leslie Fred, The Laurels, Windmill Hill Lane, Derby.
STEWARDSON : Arthur William, 13 Petteril Bridge Terrace, Warwick Road, Carlisle.
SUTCLIFFE : Edgar, 88 Industrial Street, Todmorden, Yorks.
WEEKES : Norman Barnett, c/o Liverpool Corporation, Engineers' Department.
WEST : Arthur James, 10 North Bank Terrace, Shear Brow, Blackburn.
WHITWORTH : Robert, 265 Wykeham Road, Reading, Berks.

Intermediate.

The Intermediate Examination, qualifying for registration as Student R.I.B.A., was held in London and Manchester from the 19th to the 26th November. Fourteen candidates were examined, with the following results :—

	Number examined.	Passed.	Relegated.
London . . .	9	4	5
Manchester . .	5	3	2
	14	7	7

The passed candidates, who have been registered as Students, are as follows, the names being given in order of merit as placed by the Examiners :—

DAVIES : David Owen Harris [*P.* 1915]; 81 Calabria Road, Highbury, N.
ROBERTS : Walter Leslie [*P.* 1912]; 388 Stockport Road, Bredbury, nr. Stockport.
BOWMAN : William Hesketh [*P.* 1912]; Ivy House, 58 Bolton Road, Pendleton, Manchester.
GEORGE : Granville Walter Henry [*P.* 1912]; 132 Goddard Avenue, Swindon, Wilts.
GRAY : Andrew [*P.* 1911]; 64 Duncombe Road, Hertford.
ROFF : Oscar Alan [*P.* 1911]; 53 Meersbrook Bank Road, Sheffield.
STONE : John Thomas [*P.* 1906]; 4 Creswick Walk, Hendon, N.W.

Exemptions from the Intermediate.

The following Probationers, having produced satisfactory evidence of their training and qualifications, were exempted from sitting for the Intermediate Examination and have been registered as Students :—

HENRIQUES : Elias Cosmas [*P.* 1915]; c/o Architectural Association, 18 Tufton Street, Westminster, S.W. [Bombay School of Architecture.]
HUTTON : Lorne De Hutton [*P.* 1915]; c/o Architectural Association, 18 Tufton Street, Westminster, S.W. [Dunedin School of Art and Design.]

In accordance with the special concession granted by the Council to Probationers serving with the Forces

who are eligible for the Intermediate Examination and whose Testimonies of Study have been approved, the following were also exempted :—

ASHWORTH : James Rothwell [*P.* 1910]; 2 Broad Oak, Accrington. (Lieut. 5th Bn. East Lancs. Regiment.)
BELL : Edgar Allan [*P.* 1913]; 31 Hanover Square, Leeds. (Corporal, York Hussars.)
COUCHMAN : Harold William [*P.* 1913]; Mount Pleasant House, Mount Pleasant Road, Tottenham. (153rd Battery, Royal Garrison Artillery.)
DRYDEN : Thomas Archibald [*P.* 1908]; Cloverley, Eversley Road, Sketty, Glam. (University of London O.T.C.)
GASKELL : Reginald Robinson [*P.* 1904]; Albert Chambers, 11 Carr Lane, Hull. (1/1 East Riding Field Company, Royal Engineers.)
GREENSILL : George Edward Augustus [*P.* 1913]; Allport Road, Cannock, Staffs. (Birmingham City Bn., Royal Warwick Regiment.)
GRUMMANT : Reginal Thomas [*P.* 1914]; 27 Raul Road, Hanover Park, Peckham, S.E. (Artists' Rifles.)
HECTOR : Alexander Ogilvie [*P.* 1906]; "Pinehurst," Tilford, near Farnham, Surrey. (Corporal, Princess Patricia's Canadian Light Infantry).
JONES : Harold [*P.* 1914]; School House, Wingrave, nr. Aylesbury, Bucks. (19th Bn., Royal Fusiliers.)
LEE : Stanley [*P.* 1912]; 14 Ash Grove, Newland, Hull. (Royal Garrison Artillery.)
LUMB : Joseph Haydn [*P.* 1912]; 1 Whitby Avenue, Heworth, York. (1/6 2nd London, Royal Engineers.)
MORGAN : Taliesin Merfyn [*P.* 1913]; "Telynfa," Aberdare. (Inns of Court O.T.C.)
NORRIS : William George [*P.* 1910]; 9 Caversham Road, Kentish Town, N.W. (68th Coy., Army Ordnance Corps.)
PALMER : Kenneth [*P.* 1913]; 7 Beech Range, Levenshulme, Manchester. (Royal Army Medical Corps.)
PAXTON : Norval Rowallan [*P.* 1912]; 208 Ledard Road, Langside, Glasgow. (Glasgow University O.T.C.)
PROSSER : Donald Sydney [*P.* 1913]; "Heathfield," Llanishen, nr. Cardiff. (Inns of Court O.T.C.)
RICHARDS : Archibald Ivor [*P.* 1907]; 220 Broomwood Road, Clapham Common, S.W. (Inns of Court O.T.C.)
ST. LEGER : Charles Douglas [*P.* 1914]; Fort Purbrook, Cosham, Hants. (2nd Lieut., 13th Hampshire Regiment.)
SHIPLEY : Ralph Reginald [*P.* 1910]; 11 Woodbine Terrace, Gateshead-on-Tyne. (2nd Lieut., 63rd Northumbrian Division, Royal Engineers.)
SMITH : Charles William [*P.* 1912]; Central Y.M.C.A., Tottenham Court Road, W. (Artists' Rifles.)
THIRTLE : Tom Owen [*P.* 1908]; 35 Sheepcote Road, Harrow. (Royal Army Medical Corps.)
WILLIAMS : Leo John [*P.* 1912]; Branksome, Mennaye, Penzance. (2nd Lieut., 2/5 Bn. Duke of Cornwall's Light Infantry.)

Final and Special.

The Final and Special Examinations, qualifying for candidature as Associate R.I.B.A., were held in London from the 2nd to the 10th December. Of the 29 candidates admitted, 10 passed, and the remaining 19 were relegated in various subjects. The successful candidates are as follows :—

CHEEK : Cyril Cliff [*S.* 1912]; 36 Crockerton Road, Wandsworth Common.
COLBECK : Henry [*S.* 1909]; 26 Bramley Road, Ealing, W.
GALE : Charles Henry [*Special*]; 31 Kersland Street, Hillhead, Glasgow.
HAMILTON : Andrew Blayney [*S.* 1914]; Bloomsbury Club, Cartwright Gardens, W.C.
HILL : Claude Edgar [*S.* 1911]; 35 Collegiate Crescent, Sheffield.
HULL : James Vincent [*S.* 1913]; "Lofthouse," near Garstang, Lancs.
PICTON : Clarence Spencer [*S.* 1913]; 73, St. Donatt's Road, New Cross, S.E.
RAINGER : Herbert P. [*Special*]; Lloyd's Bank Chambers, Cheltenham.
ROUGH : James Wilfred [*Special*]; c/o New Zealand High Commissioner, 13 Victoria Street, S.W.
VINDEN : Gilbert [*S.* 1912]; 57 Eastern Avenue, Reading.

The number of failures in each subject of the Final Examination was as follows :—

A. Design	8
B. Construction—	
(1) Foundations, Walls, Roofs, &c.	12
(2) Iron and Steel	14
C. Hygiene	11
D. Properties and Uses of Building Materials	6
E. The Ordinary Practice of Architecture	11
F. The Thesis	2

The Ashpitel Prize, 1915.

On the recommendation of the Board of Architectural Education, the Council have awarded the Ashpitel Prize for 1915 to Mr. Percy Joyce Adams, of "Fairmead," Woodside Road, Woodford, Essex [*Probationer*, 1906, *Student*, 1911, passed the Final Examination July, 1915], he being the Candidate who has most highly distinguished himself in the Final Examinations held in 1915.

NOTICES.

A GENERAL MEETING (ORDINARY) will be held on Monday 31st January 1916, when the Chair will be taken at THREE P.M. precisely, for the following purposes :—

To read the Minutes of the General Meeting (Business) held on the 29th November 1915 ; to announce the names of candidates recommended for admission ; formally to admit members attending for the first time since their election.

To announce the name of the person the Council propose to submit as a fit recipient of the ROYAL GOLD MEDAL for 1916.

Now on View in the West Gallery.

A Collection of Drawings by the late W. Burges, A.R.A., illustrating his designs for his house in Melbury Road, and its Decoration, Fittings, and Furniture.

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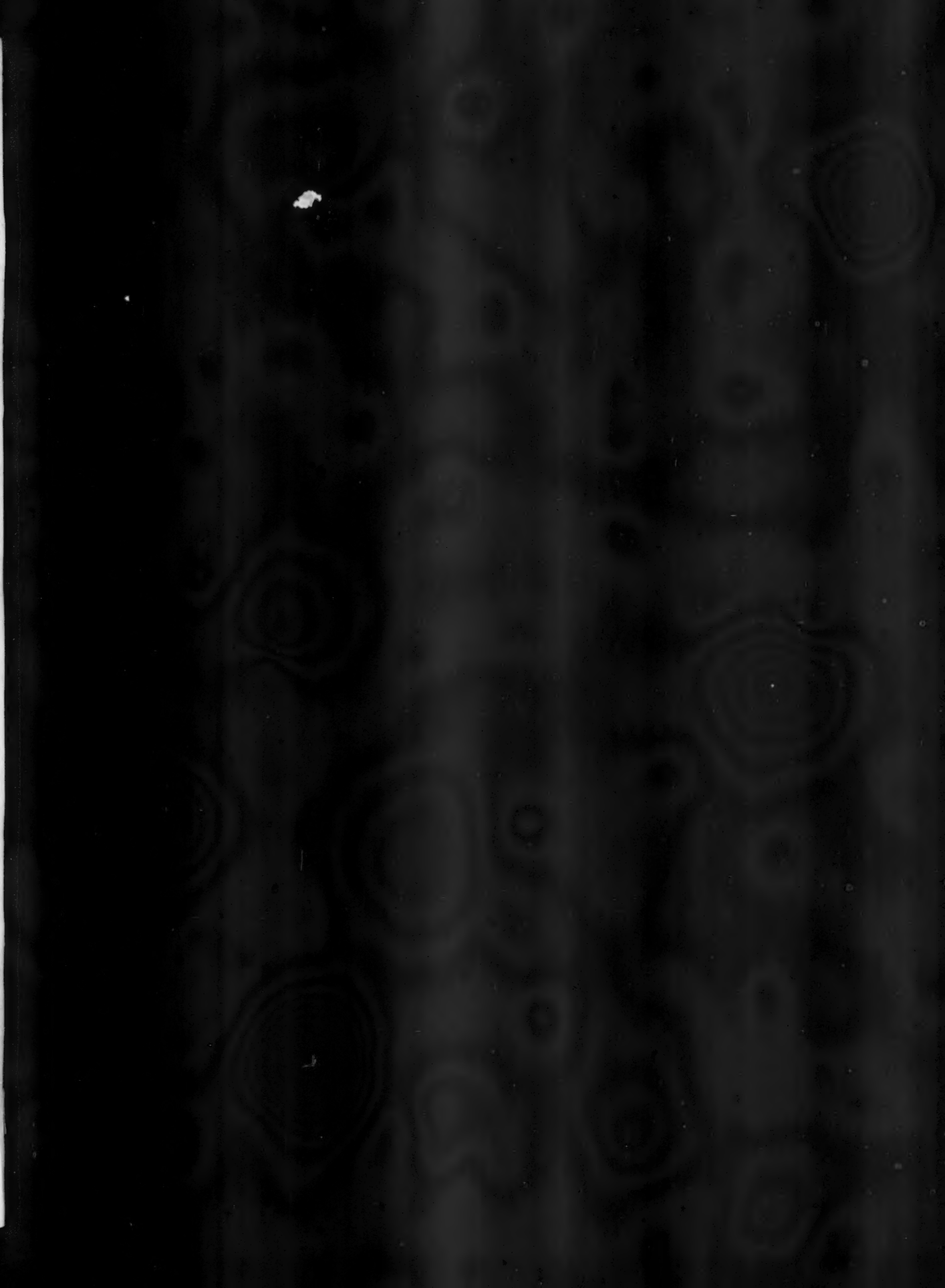
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